

Hepatology

Give a short account on :

1. Causes , clinical picture & complications of liver cirrhosis .
2. Causes , complications , treatment of portal hypertension.
3. Management of bleeding esophageal varices.
4. Diagnosis & management of hematemesis.
5. Hepatic encephalopathy.
6. Causes , clinical picture & treatment of acute hepatic failure .
7. DD of recurrent jaundice.
8. How to reach diagnosis of a case of jaundice.
9. Sequelea of acute hepatitis.
10. Clinical picture , investigation , treatment of chronic viral C hepatitis.
11. Amebic liver abscess.

Enumerate :

1. Pathogenesis of ascites in hepatic patient.
2. Precipitating factors of hepatic encephalopathy.
3. Causes of hematemesis.
4. **Diagnosis of HCV :**
 - Anti-HCV IgM, IgG (by ELISA, enzyme-linked immunosorbant assay) : +ve after 6 wks of infection
 - HCV RNA (PCR, polymerase chain reaction) : +ve within 2 wks, marker of active infection.
 - Anti-HCV (by RIBA, recombinant immunoblot assay) : to confirm +ve anti-HCV ELISA in patients with undetectable HCV RNA.
 - HCV genotype: predict response to therapy (genotype2,3 better than 1,4)
 - Liver enzymes, Serum albumin, PT : to assess the chronic liver disease.
 - Imaging : US should be ordered to assess the presence or absence of cirrhosis, portal vein diameter & size of spleen.
 - Liver biopsy : to detect the chronic hepatitis activity & degree of fibrosis.

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5. Indications, Contraindications & monitoring for interferon therapy in chronic Hep C

Indications :

- HCV RNA : +ve
- Biopsy with chronic hepatitis.
- Compensated liver disease.
- For genotype 2,3 : High response rate, here, biopsy is not necessary.

Contraindications :

- Decompensated cirrhosis.
- Pregnancy.
- Psychic disorder.
- Severe cardiac or pulmonary disease.
- Uncontrolled DM.
- Seizure.
- Autoimmune disease.
- Renal failure is absolutely contraindicated for ribavirin.

Monitoring :

- PCR : If no response after 3 months : stop the drug
- CBC : Stop the drug if WBCs < 3000 or platelets < 100000 /cmm
- The patient must be monitored carefully for side effects including flu-like symptoms, depression, BM depression, ...

6. Causes of NAFLD.

7. Extrahepatic complications of viral hepatitis.

8. Pitfalls in treatment of ascites in hepatic patients.

9. Causes of obstructive jaundice.

10. Differentiate clinically between intra & extra hepatic cholestasis

Liver commentaries

The first case

The case start with either Bilharziasis (farmer) or hepatitis (blood transfusion)



Liver cirrhosis

why ? ☞ LCF manifestations (Jaundice , ascites , ...)

☞ Portal hypertensions (Esoph. varices)



Complicated by : one of the following 5

Hepatoma	SBP	Hypersplenism	Encephalopathy	B.corpulmonale
- Rapid unexplained deterioration. - Resistant ascites. - Paramalignant syndrome.	- Aspiration of ascetic fluid : WBCs > 250/cm² - Improved by antibiotics. - Resistant ascites. - Abdominal tenderness & fever.	- ↓ WBCs, RBCs, platelets - Notice that portal hypertension is an important cause of hypersplenism.	- Precoma manifestations (2 SAD) - Coma.	- History of B. - pulmonary HTN. - RSHF

So,.. the final diagnosis is liver cirrhosis **complicated by** one of the 5's above.

The second case

Ameobic hepatitis :

A case of fever , right upper quadrant pain & tenderness , moderate hepatomegaly with or without jaundice , ↓ air entry on base of right lung (e.g. pleural effusion) . Also leucocytosis , ↑↑ alkaline phosphatase.

The third case

Wilson disease :

The family history, clinical examination & laboratory tests show the presence of acute liver failure, plus neurological manifestations e.g. abnormal movement. All point to the diagnosis of Wilson's disease.

The fourth case

Acute hepatitis

Jaundice, right upper quadrant pain, fatigue and markedly elevated ALT & AST make the diagnosis of acute hepatitis.

Liver doses

1- Chronic hepatitis :

- **Interferon :** in ttt of chronic active viral hepatitis : P 42

✎ **Alpha-interferon :**

- **HBV :** 5 million units SC 3 times/week for at least 3 months.
- **HCV :** 3 million units SC 3 times/week for at least 6 months.

✎ **Pegylated Interferon (Peg interon) :** Long acting Interferon

180 µg SC , once/week for at least 6 months.

- Dose of cortisone in ttt of autoimmune hepatitis :

- 1st week : 30 mg/d then maintenance dose :15 mg/d for 6 months – 3 years
- If full remission : withdraw the drug slowly.
- If no remission : continue maintenance & azathioprine 50 – 100 mg/d may be added.

2- ttt of ascites in hepatic patients : don't forget the dose of :

- Spironolactone : in full dose 100 – 400 mg/day
- Lasix : 40-120 mg/d

3- Vasopressin in ttt of acute attack of esophageal varices :

20 unit in 200 ml glucose 5% over 20 minutes.

Rule of 6 in Hepatology



- Pathogenesis (Etiology) of Ascites in hepatic patient 6 items.
- Treatment of Ascites in hepatic patient. 6 items
- Precipitating factors of hepatic encephalopathy..... 6 items.
- c/p of hepatic encephalopathy (pre coma)..... 6 items.
- Treatment of hepatic encephalopathy..... 6 items.
- c/p of portal hypertension 6 items
- Complications of portal hypertension..... 6 items.
- Investigations of portal hypertension..... 6 items.
- Treatment of portal hypertension (esophageal varices)..... 6 items.
- Prevention of esophageal varices..... 6 items.
- Complications of hepatitis 6 items.
- Investigations of hepatitis..... 6 items.
- Treatment of acute hepatitis 6 items.
- Investigations of amebic dysentery.6 items
- Indications of liver transplantation 6 items.
- Causes of hepatomegally 6 items.

All that you need in hepatology is just to remember & enumerate these items ($6 \times 16 = 96$ items), Try to recall these 96 items every night. ☺

CASES

1- A 42 year old man presented because of increasing abdominal girth over the previous 2 weeks. His weight had increased only 3 pounds . He denied recent fever , chills, nausea , vomiting , melena , hematemesis or abdominal pain ,but did have a previous episode of esophageal variceal bleeding treated with sclerotherapy.

Physical examination : Temp. 37C , pulse : 84b/m , Respiratory rate : 20/m , BP : 110/70 mmHg .

General : chronically ill appearing , Eyes : sclera icterus , skin : spider angiomata .
Abdomen : distension , venous redistribution pattern on the abdominal wall, tense ascites , bowel sounds present . Liver not palpable and splenic tip palpable . Edema lower limbs.

Lab finding : WBC 11.400/cmm , with 87% PMNs , Het 31% , platelets 85000/cmm, PT 11.5 seconds , Na 137mEq/L , K 5.2mEq/L , HCO₃ : 27 mEq/L , AST : 72 , ALT : 58 IU/L , Alkaline phosphatase : 18 KAU , Total serum bilirubin : 2.8 mg/dl , Paracentesis : ascites fluid is cloudy with WBC 1050/cmm , with 56% PMNs , ascites fluid protein 3 gm/dl . serum albumin 2.5 gm/dl . Medication including spirinolacton , frusemide , but a good response after addition of antibiotic.

- a) What is the professional diagnosis ?**
- b) Mention causes of hematemesis ?**
- c) What are causes of portal hypertension ?**
- d) What are the pathogenesis of the ascites in hepatic patient ?**
- e) In this patient, What is the most probable cause of ascites ?**
- f) What is the most suitable antibiotic used in treatment ?**

2- A 35 year old farmer , while working in the field , felt dizziness , fainting , extreme fatigability , nausea ,sweating and collapse . He was transferred to hospital where he passed black motion . On examination there was marked pallor , pulse 110/minute , BP : 90/60 mmHg . Abdominal examination revealed moderate enlargement of spleen . He was managed and discharged well in few days.

- a) Mention 5 data from the history that could help in reaching the diagnosis ?**
- b) Mention 5 added signs to clarify the diagnosis ?**
- c) What is the most probable diagnosis ?**
- d) Mention investigations that could be of help in assessing the case ?**
- e) How could you treat such case ?**

3- A 60 year old man presents with history of fever of six weeks duration. The patient believes that fever began following a relatively minor injury to his right upper abdominal quadrant . He has noted daily fever & right upper quadrant pain since that time . Because of the that fever he is admitted to the hospital . Physical examination reveals a febrile man with tenderness to deep palpation over the anterior superior aspect of the right upper abdominal quadrant. There is edema of skin and tenderness over the right lower intercostal spaces with dullness . Total WBC 23000 /cmm with 11% lymphocytes , 3% monocytes and 86% polymorph leukocytes . The alkaline phosphatase is 141 IU (upper limit of normal 92 IU) . The serum albumin level is low , other routine laboratory work is unremarkable. After diagnosis the patient received specific medical treatment with remarkable improvement.

- a) What are the most common causes of prolonged obscure fever ?**
- b) Mention the most probable diagnosis supported by history , clinical examination mentioned .**
- c) What are the points missed in history or clinical examination helping you to reach the diagnosis ?**
- d) What are the investigations needed other than mentioned ?**
- e) What is the possible specific medical treatment that improve the case ?**

4- A patient with cirrhotic liver and ascites came to your office complaining of disturbed sleep rhythm, personality changes and coarse tremors.

- a) What is the condition this patient has ?**
- b) What are the precipitating factors of the condition ?**
- c) How to manage this case ?**

5- HCV antibody positive patient is concerned that he may transmit the virus to his wife or children. They are tested and are to be negative for HCV antibody. He is relieved but asks for advice to prevent infecting them.

- a) What do you advice him ?**
- b) Enumerate extra-hepatic manifestations of hepatitis C ?**

6- A 32 year old male went for a pre-employment assessment. He had past history of blood transfusion once 10 years ago after a car accident. Examination revealed no clinically detectable abnormalities. Investigations ALT 120 U/L, AST 80 U/L , total bilirubin 1 mg/dL, Anti-HCV- Ab positive.

- a) What further investigations would you recommend ? And why ?**
- b) What are the drugs used in treatment of this condition ? What is the duration of treatment ?**
- c) What are the contraindications of treatment ?**

7- A 17 year old male presented to the outpatient clinic with fever, anorexia, and vomiting. The condition started 4 days before, and was associated with right hypochondrial pain that was not related to meals. There was no change in bowel habits. He noticed tea colored urine for the last day . There were no previous medical illness or drug intake.

Examination revealed temp 38 C, pulse 120/m, normal BP. He was jaundiced.

Abdominal examination revealed tenderness over the right hypochondrium, hepatomegaly 5 cm below the costal margin. There was no Splenomegaly or ascites.

Investigations : Serum ALT 2650 U/L, AST 2320 U/L, total bilirubin 5 mg/dL, indirect bilirubin 2.2 mg/dL.

- a) What would be the possible diagnosis ? And Why ?
- b) What further tests would you recommend to confirm the diagnosis ?
- c) What is the treatment ?

8- A 49 year old female presents to the ER complaining of a 4 weeks history of progressive abdominal swelling and discomfort. She has no other GI symptoms, she has a normal appetite and normal bowel habits. Her medical history is significant only for 3 pregnancies, one of which was complicated by excessive blood loss, requiring a blood transfusion. She is married for 20 years.

On examination : temp 37 C, pulse 88/m, & Bp 95/60 mmHg. She is thin, she is jaundiced. Chest and heart are clinically free. Her abdomen is distended, with mild diffuse tenderness, hypoactive bowel sounds and shifting dullness to percussion. Mild peripheral edema.

Investigations : normal except for : Na 129 mEq/L, serum albumin 2.8 mg/dL, total bilirubin 4 mg/dL, Hb 12 g/dL with MCV 102 fL and platelets $78 \times 10^9/L$.

- a) What is the most likely diagnosis ?
- b) Explain lab finding in this patient.
- c) What are your next steps ?

9- A 40 year old female complaining of 2 months history of progressive abdominal distension with no change in appetite or in bowel habits and no other GIT manifestations.

On examination : She was icteric. Temp 38 C with no lower limb edema. Chest & heart examination revealed no abnormality, her abdomen was distended with diffuse tenderness and shifting dullness.

Investigations : Hb 11g/dL, total leucocytic count $15 \times 10^9/L$, platelets $78 \times 10^9/L$, albumin 2.8 g/dL, total bilirubin 4 mg/dL, direct bilirubin 2 mg/dL , PT 15 seconds.

- a) What is the most likely diagnosis ?
- b) What further investigations should be done ?
- c) What is the cause of shifting dullness and fever ?

10- A 14 year old boy presented with yellowish discoloration of the sclera, he gave a history of tiredness and fatigue for the previous few weeks. His mother gave a family history of similar presentation few years ago in his older sister and she died few weeks later.

On examination : The boy was conscious & afebrile but jaundiced. Pulse 100/m, BP 110/70. Chest and heart were clinically free. Abdominal examination showed shifting dullness. Bilateral mild lower limb edema was present. There were abnormal movements involving both upper limbs.

Investigations : total bilirubin 3.5 mg/dL, direct bilirubin 2.8 mg/dL, albumin 3 g/dL, AST 556 U/L, ALT 678 U/L, INR 2.5

- a) What is the most likely diagnosis ?
- b) What further investigations should be done ?
- c) What is the treatment of this condition ?

Answers

Case No 1 :

a) What is the professional diagnosis ?

Liver cirrhosis complicated by Spontaneous Bacterial Peritonitis (SBP).

- Cirrhotic patients with ascites and evidence of any clinical deterioration should undergo diagnostic paracentesis to exclude SBP.
- SBP occurs in 10% of cirrhotic patient due to loss of detoxification function of the liver.
- Diagnosis :

The key to the diagnosis of SBP is examination of the ascetic fluid :

Neutrophils count > 250 cells / mm³.

b) Mention causes of hematemesis ?

See GIT book P 39

c) What are causes of portal hypertension ?

See GIT book P 32

d) What are the pathogenesis of the ascites in hepatic patient ?

See GIT book P 22

e) In this patient, What is the most probable cause of ascites ?

Spontaneous bacterial peritonitis

f) What is the most suitable antibiotic used in treatment ?

Cefotaxime: 2 gm t.d.s...IV or Ciprofloxacin 400 mg/12h for 5 - 10 days.

Case No 2 :

a) Mention 5 data from the history that could help in reaching the diagnosis ?

- 1- Farmer.
- 2- Splenomegaly.
- 3- Melena (black motion)
- 4- ↑ pulse.
- 5- History of drug intake , bleeding from other orifices , Dyspepsia.

b) Mention 5 added signs to clarify the diagnosis ?

- 1- Signs of portal hypertension : Splenomegaly, Caput medusa.
- 2- Signs of ascites : see GIT book P 70
- 3- Liver cirrhosis.
- 4- Spider naevi , palmer erythema , pallor , jaundice.
- 5- PR : to exclude hemorrhoids , fissure.
- 6- Signs of RV enlargement.

c) What is the most probable diagnosis ?

Complicated portal hypertension (Rupture esophageal varices)

DD :

- Causes of upper GIT bleeding :
- B polyposis.
- B corpulmonale : syncope

d) Mention investigations that could be of help in assessing the case ?

Investigations of esophageal varices : P 35 (6 items)

e) How could you treat such case ?

Treatment of portal hypertension : p 36

Case No 3 :

a) What are the most common causes of prolonged obscure fever ?

1- Infections : 30%

- Bacterial : TB , IE , Typhoid , Brucellosis , Lung abscess , Pyelonephritis
- Viral : EBV , CMV , HIV , Hepatitis ...
- Protozoa : Amebiasis , malaria.

2- Malignancy (20%) : Lymphoma , leukemia , hepatoma ,

3- Collagen diseases (10%) : SLE , RA , PAN , ...

4- Others (20%) : Sarcoidosis , pulmonary embolism , Cerebral hemorrhage ,
Atropine , ...

5- Undiagnosed (20 %) : most will resolve spontaneously.

b) Mention the most probable diagnosis supported by history , clinical examination mentioned .

The most probable diagnosis : Amebic liver abscess. (why ?) , DD : ...

c) What are the points missed in history or clinical examination helping you to reach the diagnosis ?Points missed in history :

- 1- Type of fever : remittent
- 2- Presence of rigor.
- 3- Chest symptoms : cough , dyspnea.
- 4- History of amebic dysentery.
- 5- Nausea , vomiting.

Points missed in clinical examination :

- 1- Complexion : earthy facies due to toxemia.
- 2- Jaundice : usually mild.
- 3- Enlarged tender liver.
- 4- Right basal lung signs : e.g. pleural rub , signs of lung abscess.

d) What are the investigations needed other than mentioned ?

See GIT book P 66 (*notice that Liver function tests & Leucocytosis are mentioned in the case*)

Case No 4 : Hepatic encephalopathy.

Case No 5 :

a)

- HCV is spread by parenteral contact with infected blood. In contrast to hepatitis B , sexual transmission of HCV is inefficient thus, it is NOT recommended that couples in long term relationship alter their sexual practices (e.g. use of condoms, etc ..)
- Hepatitis C is NOT spread by hugging, sneezing or sharing a drinking glass.
- Household members of persons infected with HCV should not share items that might be contaminated with small amount of blood , such as nail clippers

b) Extra hepatic manifestations of hepatitis

- Immune complex disease is relatively common in HCV patients.
- Membranoproliferative GN.
- Mixed cryoglobulinemia.
- Thyroiditis.
- Arthritis.
- Skin : porphyria cutanea tarda, Lichen planus.

Case No 6 :**a) The investigations :****I. Lab :**

- Serum albumin, PT, CBC to assess the presence of liver cirrhosis.
- PCR : Hepatitis C virus RNA to confirm the diagnosis. Anti HCV Ab by ELIZA is used only for screening.

II. Imaging :

- Abdominal US : to assess the presence or absence of cirrhosis, portal HTN, Size of spleen.

III. Liver biopsy is indicated to detect the chronic hepatitis activity and degree of fibrosis.**b)**

- Combined ttt with pegylated interferon & ribavirin is used in the ttt of chronic HCV
- Dose , Precautions : see book
- Duration of ttt : for 12 months. Treatment should continue for longer period especially in a case of HCV genotype 4 (genotype in Egypt).

c)

- Decompensated cirrhosis is considered a contraindication.
- Renal failure is an absolutely contraindication for ribavirin.

Case No 7 :**a) The diagnosis is an acute hepatitis (most probably Hep A)**

- Jaundice, right upper quadrant pain, fatigue and markedly elevated ALT & AST make the diagnosis of acute hepatitis.
- The age, the absence of drug history plus the typical symptoms and signs make the diagnosis of hepatitis A most appropriate.

b) Anti HAV Ab (IgM) should be recommended to confirm the diagnosis.**c) Treatment is conservative (bed rest & symptomatic ttt). The condition is benign, resolves gradually and NOT complicated by chronicity.**

Case No 8 :

a) The most likely diagnosis : ascites caused by portal hypertension as a complications of liver cirrhosis.

b) Lab finding :

- Low albumin : refer to chronicity of liver pathology (liver cirrhosis)
- Increased bilirubin : indicates decompensated liver that clinically leads to jaundice.
- Hyponatremia : may be due to use of diuretics.
- Thrombocytopenia : mostly due to hypersplenism.

c) Next steps :

- Abdominal US to confirm the diagnosis.
- Paracentesis to evaluate the ascetic fluid to determine the likely etiology & to evaluate for the complication of SBP.
- Markers for viral hepatitis HBV, HCV should also be done.

Case No 9 :

a) The most likely diagnosis is ascites secondary to liver cirrhosis complicated by spontaneous bacterial peritonitis. : due to fever, abdominal tenderness and leucocytosis.

b) The next diagnostic steps :

- Abdominal US to confirm the diagnosis.
- Paracentesis to evaluate the ascetic fluid (neutrophils count > 250 cells/ mm^3 in a case of SBP)

c) Causes of shifting dullness is the presence of ascites. Fever is mostly due to complicating SBP, concomitant infection elsewhere and HCC.

Case No 10 :

a) The most likely diagnosis is **Wilson's disease**. The family history, clinical examination & laboratory tests show the presence of acute liver failure , plus abnormal movement. All point to the diagnosis of Wilson's disease.

b) Further investigations :

- Serum ceruloplasmin (should be low) and urinary Cu excretion (should be elevated).
- Slit lamp examination of the cornea for the presence of Kayser Fleischer ring.
- Brain MRI.
- Liver biopsy.

c) Treatment :

- Cu chelation : D penicillamine.
- Supportive measures for acute liver failure.
- Liver transplantation.

MCQ

1- Which of the following laboratory tests is most characteristic of a patient with jaundice secondary to alcoholic hepatitis ?

- a) Ratio of AST:ALT is 3:1 and the AST is 500 U/L
- b) Ratio of AST:ALT is 2:1 and the AST is 250 U/L
- c) Ratio of AST:ALT is 1:1 and the AST is 250 U/L
- d) Ratio of AST:ALT is 1:3 and the AST is 750 U/L

1- b, In alcoholic hepatitis, the AST:ALT ratio is usually 2:1 and the level of AST is usually < 300. When viral hepatitis or toxin induced hepatitis causes jaundice, the AST:ALT ratio is usually 1:1 and usually > 500

2- Which of the following medications causes predictable, dose dependant hepatocellular injury?

- a) Morphine
- b) INH
- c) Gold
- d) Acetaminophen

2- d, Its daily dose shouldn't exceed 4g/d, over 15g/d will result in liver injury, >25 → fatal fulminant hepatic failure.

3- Which of the following is the most likely mechanism of paracetamol hepatotoxicity?

- a) An allergic mechanism.
- b) An active metabolite
- c) Circulating immune mechanism
- d) A reaction with hepatic glycogen stores.

3- b, An active metabolite is hepatotoxic, It is detoxified by glutathione, & when glutathione stores are depleted, severe liver damage can occur.

4- Which of the following is the most appropriate in a case of acetaminophen toxicity?

- a) Ethanol
- b) Narcan.
- c) Cortisone
- d) N-acetylcysteine.

4- d, It acts by binding of toxic metabolite, Narcan is effective for narcotic overdose, ethanol for methanol toxicity.

5- As regard to primary biliary cirrhosis, which of the following is most curative?

- a) Ursodiol (ursodeoxycholic acid)
- b) Methotrexate.
- c) Azathioprine.
- d) Liver transplantation.

5- d

6- Which of the following is the most appropriate step to diagnose primary biliary cirrhosis?

- a) INR
- b) ANA
- c) Antimitochondrial antibodies
- d) Ct abdomen

6- c

7- Which of the following is the most likely explanation for why early jaundice is visible in the eyes but not the skin?

- a) The high type II collagen content of the sclera tissue.
- b) The high elastin content of sclera tissue.
- c) Secretion via the lacrimal gland.
- d) The high blood flow to the head with consequent increased bilirubin delivery ☺

7- b, The sclera are high in elastin, which has an affinity for bilirubin.

8- As a consequence of severe liver damage, hepatic amino acid handling is deranged. In this situation, plasma levels of which of the following are likely to be lower than normal?

- a) Ammonia (NH_3)
- b) Ammonium (NH_4)
- c) Urea.
- d) Glycine.

8- c, Amino acids , except for the branched - chain amino acids leucine , isoleucine and valine , are taken up by the liver via the portal circulation and are metabolized to urea.

9- Which of the following conditions are known to predispose to the formation of cholesterol gallstone ?

- a) Hypertriglyceridemia.
- b) Hypercholesterolemia.
- c) Auto immune hemolytic anemia.
- d) Surgical resection of the ileum.

9- d, Obesity , clofibrate therapy , age and oral contraceptive therapy predispose to gallstone formation by increasing biliary cholesterol excretion. Extensive ileal resection leads to malabsorption of bile salts, and an inability to micellize cholesterol. No correlation exists between serum cholesterol concentration and biliary cholesterol secretion. Other important predisposing factors to the formation of cholesterol gallstones include gallbladder hypomotility resulting from prolonged parenteral nutrition, fasting or pregnancy. Pigment gallstones may occur when the bilirubin level is high , such as in hemolytic anemia.

10- A patient with sclera icterus and a positive reaction for bilirubin by urine dipstick testing could have which of the following disorders?

- a) Autoimmune hemolytic anemia.
- b) Dubin Johnson syndrome.
- c) Crigler-Najjar type II disorder.
- d) Gilbert's syndrome.

10- b, - Under normal conditions or even in cases of unconjugated hyperbilirubinemia (e.g. hemolysis, Gilbert's & Crigler-Najjar types I and II) : the urine contains no bilirubin. This is because the unconjugated bilirubin , is tightly bound to albumin and is not filtered by the glomeruli.

- In cases of conjugated hyperbilirubinemia (e.g. Dubin Johnson , Rotor syndrome) : the urine dipstick becomes positive for bilirubin.

11- SAAG is > 1.1 g/dl in all except

- a) Tuberculous peritonitis
- b) Congestive heart failure
- c) Liver cirrhosis
- d) Budd-Chiari syndrome

11- a

12- Which of the following statements regarding delta hepatitis virus (HDV) is correct?

- a) HDV is a defective DNA virus .
- b) HDV can infect only persons infected with hepatitis B virus (HBV)
- c) HDV infection has been found only in limited areas of the world.
- d) Simultaneous infection with HDV & HBV results in an increased risk of the development of chronic hepatitis.

12- b, HDV is a defective virus that coinfects with and requires the helper function of HBV for its replication and expression. In general, patients with simultaneous HBV & HDV infections do not have an increased risk of developing chronic hepatitis compared with patients with acute HBV infection alone. HDV superinfection of patients with chronic HBV infection carries an increased risk of fulminant hepatitis and death.

13- 10- A 66 year-old man presents with fatigue and tea colored urine Physical examination reveals icteric sclera but is otherwise unremarkable. Which of the following conditions is LEAST likely to account for these findings?

- a) Pancreatic cancer.
- b) Primary biliary cirrhosis.
- c) Auto immune hemolytic anemia.
- d) Viral hepatitis.

13- c, Bilirubin , a breakdown product of heme derived from red blood cells, is transported to the liver in an unconjugated state, which is not renally excreted.

14- Typical causes of extra hepatic cholestatic jaundice include:

- a) primary biliary cirrhosis.
- b) cystic fibrosis.
- c) Alcoholic cirrhosis.
- d) non-alcoholic steatohepatitis.

14- b,

- Primary biliary cirrhosis , alcoholic cirrhosis : Intrahepatic obstruction.
- Cystic fibrosis → Common bile duct obstruction from chronic pancreatitis.
- Non-alcoholic steatohepatitis : Rarely causes jaundice.

15- A 56 year- old patient with cirrhosis of the liver presents with massive hematemesis. Somatostatin, fluids and blood products are administered and the patient is intubated. Emergency endoscopy reveals bleeding esophageal varices. The patient becomes stable hemodynamically but is still bleeding. The most appropriate next step is :

- a) intravenous propranolol.
- b) intravenous vasopressin.
- c) endoscopic injection sclerotherapy.
- d) endoscopic variceal band ligation.

15- d, Once bleeding develops , the first considerations are hemodynamic stabilization and airway protection. Emergency endoscopy is required to define the nature and site of bleeding. Medical therapy with vasopressin , nitroglycerine, somatostatin or octreotide can be used to slow the bleeding while waiting endoscopy. Although endoscopic injection sclerotherapy controls the active hemorrhage in 90%, recent studies have suggested that EVL may be superior due to equal control rates with less rebleeding & fewer complications.

16- All of the following are associated with obstructive jaundice except

- a) Oral contraceptive pills
- b) Pregnancy
- c) Crigler-Najjar type II
- d) Secondary carcinoma of the liver

16- c

17- Which organ doesn't move with respiration

- a) Pancreas
- b) Liver
- c) Transverse colon
- d) Kidney

17-a

18- The following are risk factors for hepatocellular carcinoma except

- a) Hepatic hemangioma.
- b) Chronic hepatitis C
- c) Hemochromatosis
- d) Aflatoxin

18-a, Hemangioma is the most common benign tumor affecting the liver.

19- What do you recommend for a surgeon punctured by a needle during cholecystectomy for a patient with hepatitis C

- a) Reassurance.
- b) Active immunization
- c) Passive immunization
- d) Interferon therapy
- e) Follow up of liver enzymes.

19- e, There is no effective prophylaxis for HCV following exposure to infected blood. Both Ig therapy & interferon are ineffective in preventing HCV infection. There is currently no vaccine for HCV. Serial determination of anti-HCV antibodies is recommended for 6 months.

- ☞ Post exposure management for Hep B :
 - Vaccinated : no need for treatment
 - Not vaccinated : IM injection of HBIG & start HBV vaccination.
- ☞ Post exposure risk following needlestick injuries : A C B ☺
 - ☠ AIDS : 3 in 1000 (0.3%)
 - ☠ Hep C : 3 in 100 (3%)
 - ☠ Hep B : 3 in 10 (30%)

20- The following statements are true of ascites EXCEPT :

- a) A high protein content in ascites is usual in alcoholic liver disease.
- b) Ascites resistant to diuretics is characteristic of hepatic vein thrombosis.
- c) Ascites is sometimes associated with a pleural effusion.
- d) Ascites is a risk factor for bacterial peritonitis.

20- a

21- Which of the following is NOT dependent on bile salts for its absorption?

- a) Vitamin A.
- b) Vitamin B.
- c) Vitamin K.
- d) Vitamin D.

21- b

22- Which of the following drugs causes cholestatic jaundice:

- a) Rifampicin.
- b) Isoniazid.
- c) Erythromycin.
- d) Halothane.
- e) Paracetamol.

22- c

23- Typical features 6-8 hours after paracetamol poisoning include :

- a) Coma and ophthalmoplegia
- b) Prolongation of the prothrombin time
- c) Metabolic acidosis and hypoglycaemia
- d) Nausea, vomiting & abdominal pain.

23- d, Explanation :

- ☞ Coma and ophthalmoplegia : Late features suggesting hepatic encephalopathy (after 3-5 days)
- ☞ Prolongation of the prothrombin time : Rare before 24 hours
- ☞ Metabolic acidosis and hypoglycaemia : Consequence of hepatic necrosis (after 36 hours)

24- The concentration of conjugated bilirubin in the

- a) serum in hemolytic anemia is typically increased.
- b) urine of healthy subjects is typically undetectable.
- c) serum normally constitutes most of the total serum bilirubin.
- d) serum in Gilbert's syndrome is typically increased

24- b, As almost all bilirubin is unconjugated and albumin-bound.

25- Characteristic features of Gilbert's syndrome include EXCEPT

- a) An autosomal recessive mode of inheritance
- b) Decreased hepatic glucuronyl transferase activity
- c) Serum bilirubin concentration increased by fasting
- d) Unconjugated hyperbilirubinemia is the sole abnormality.

25- a, Typically autosomal dominant.

26- The following features suggest extrahepatic cholestasis rather than viral hepatitis EXCEPT :

- a) A palpable gallbladder.
- b) Right hypochondrial tenderness
- c) Serum alkaline phosphatase concentration > 2.5 times normal
- d) Pruritus and rigors
- e) peripheral blood polymorph leucocytosis.

26- b, Also common in acute hepatitis.

27- As regard to hepatitis C, which is correct?

- a) A chronic carriage rate of < 50% is the rule
- b) The disease does not progress to hepatoma
- c) Most patients experience the symptoms of acute hepatitis
- d) The virus is responsible for 90% of all post-transfusion hepatitis

27- d

28- Typical liver function values in acute hepatic failure include :

- a) Hypoalbuminemia
- b) Hypoglycemia
- c) Serum alkaline phosphatase > 6 times normal
- d) Peripheral blood lymphocytosis

28- b, Impaired hepatic gluconeogenesis.

29- The typical features of hepatic cirrhosis include EXCEPT :

- a) A small shrunken liver
- b) Painful Splenomegaly.
- c) Peripheral blood macrocytosis.
- d) Central cyanosis

29- b, Painless Splenomegaly. Central cyanosis : Hepatopulmonary syndrome associated with pulmonary telangiectasia

30- Prevention of recurrent variceal bleeding is achievable using EXCEPT

- a) somatostatin (octreotide) therapy
- b) TIPSS
- c) Variceal banding
- d) Sclerotherapy

30- a, Somatostatin may be useful in acute bleeds.

31- In primary biliary cirrhosis :

- a) Middle-aged males are affected predominantly
- b) Pruritus is invariably accompanied by jaundice
- c) Osteomalacia and osteoporosis both occur as the disease progresses
- d) Smooth muscle antibodies are present in high titres in the serum.

31- c, Vitamin D malabsorption and hepatic osteodystrophy

32- The typical features of primary haemochromatosis include EXCEPT

- a) Inherited as an autosomal recessive gene located on chromosome 6
- b) Male predominance
- c) Hepatic cirrhosis and diabetes mellitus
- d) Grey skin pigmentation due to ferritin deposition.

32- d, Melanin not iron deposition

Dr. A. Mowafy

Nephrology MCQ

1- Which of the following electron microscopy findings on the renal biopsy is most likely with poststreptococcal GN ?

- a) Diffuse mesangial deposits
- b) No deposits
- c) Closed capillary lumen
- d) Subepithelial humps**
- Light microscopy : diffuse proliferation.
- Immunofluorescence : granular IgG & C3.

2- Which of the following findings on the urinalysis is most likely with acute GN?

- a) Proteinuria
- b) WBC casts
- c) Erythrocyte casts**
- d) Hyaline casts

3- Which of the following changes in the kidney is most likely seen with analgesic nephropathy?

- a) Glomerulosclerosis
- b) Papillary necrosis and tubuleinterstitial inflammation**
- c) Tubular necrosis
- d) Cortical necrosis

4- Which of the following complications of transplantation is the most likely cause of death?

- a) Atherosclerotic disease**
- b) Opportunistic infection
- c) Lung cancer
- d) Lymphoma

5- Which of the following is not compatible with diabetic nephropathy?

- a) Nephrotic range proteinuria
- b) Hypertension
- c) RBCs casts in urine**
- d) Renal tubular acidosis type IV

☞ RTA type IV (hyporeninemic hypoaldosteronism) : caused by renal dysfunction-most commonly diabetic nephropathy, NSAIDs, Cyclosporine.

6- Which of the following laboratory values suggests prerenal azotemia?

- a) Markedly elevated urea, unchanged creatinine.
- b) Unchanged urea, elevated creatinine.
- c) Urea/creatinine ratio of 10
- d) Urea/creatinine ratio of 25**

- The urea/creatinine ratio is usually < 10 in intrinsic renal disease and > 20 in prerenal.
- Fractional excretion of Na is $> 2\%$ in intrinsic renal disease and $< 1\%$ in prerenal azotemia.

7- A 27 year old woman with well controlled bipolar disorder, develops polyuria and polydipsia. Which one of the following is the most likely diagnosis?

- a) Central DI
- b) Nephrogenic DI**
- c) Osmotic diuresis
- d) Primary polydipsia

She is treated with lithium, and lithium is one of the drugs that cause Nephrogenic DI.

8- A 19 year-old man and one of his 2 brothers have polyuria and polydipsia since birth. Neither his sister nor his parents are affected. What is the most likely diagnosis?

- a) Central DI
- b) Nephrogenic DI**
- c) Osmotic diuresis
- d) Primary polydipsia

Nephrogenic DI can be inherited on the X chromosome. Its X-linked recessive nature means that males are predominantly affected.

9- A 21 year old woman develops polydipsia and polyuria during pregnancy. The the most likely diagnosis is :

- a) Central DI**
 - b) Nephrogenic DI
 - c) Osmotic diuresis
 - d) Primary polydipsia
- Primary deficiency of ADH can result from increased metabolism by a placental enzyme (gestational DI). It resolves within a few weeks after delivery.
 - Gestational DM also can result in hyperglycemia & polyuria (osmotic diuresis)

10- A 20-year old man comes to the physician because he has noticed blood in his urine on several occasions over the past year. Each episode of hematuria occurred in association with an upper respiratory tract infection or flulike illness. Physical examination is unremarkable. A urine dipstick test shows mild proteinuria & microhematuria. Serum level of electrolytes, creatinine & urea are normal. Which of the following is the most likely diagnosis?

- a) Goodpasture syndrome
 - b) Berger disease**
 - c) Henoch-Schönlein purpura
 - d) Postinfectious GN
- Postinfectious GN : Hematuria occurs 1-2 weeks after URTI or impetigo.
 - Henoch-Schönlein purpura : hematuria is associated with palpable purpura, arthralgia & abdominal pain. It usually affects children.
 - Goodpasture syndrome : typically involves both the lungs & kidneys. It manifested by hemoptysis & nephritic syndrome.

11- What segment of the normal kidney is most of the water reabsorbed from?

- a) Proximal tubule**
- b) Distal tubule
- c) Ascending loop of Henle
- d) Descending loop of Henle

12- A renal biopsy shows nodular deposits that have an apple green birefringence under polarized light when stained with Congo red in which of the following ?

- a) Multible myeloma
 - b) Amyloidosis**
 - c) Diabetic nephropathy
 - d) IgA nephropathy
- The only way to make a definitive diagnosis of amyloidosis is to take a biopsy and stain the tissue sample with Congo red. Under polarised light it shines not red but a greenish hue termed, classically, “apple-green birefringence”. It is not seen in any other renal disease.

13- Which of the following is the most likely mechanism for the renal injury in a case of multiple myeloma?

- a) Plasma cell infiltration
- b) Tubular damage by light chains**
- c) Vascular injury by light chains
- d) Glomerular injury

In MM, tubular damage by light chains is almost always present. Infiltration by plasma cells & glomerular injury is rare. Other causes : hypercalcemia, amyloidosis, infections e.g. pyelonephritis.

14- A 4 -year-old child presents to the ER with history of bloody diarrhea & decrease urination. The mother states that the child's symptoms began 5 days ago, after the family ate at a fast food restaurant. At that time, the patient developed fever, vomiting, abdominal pain, & diarrhea. On physical examination, the patient appears ill. He is pale & lethargic. Which of the following is the most likely diagnosis?

- A. Goodpasture syndrome
- B. Hemolytic uremic syndrome**
- C. Henoch-Schönlein purpura
- D. IgA nephropathy

15- Which of the following medical comorbidities is most likely to coexist with UTI?

- a) Influenza
- b) Exercise
- c) Diabetes mellitus**
- d) Analgesic drug use.

UTI is increased in DM, pregnancy, Sickle cell anemia, polycystic kidney, & structural abnormalities of the urinary tract.

16- Normal adult kidneys...all are true except :

- a) its length is about 11-14 cm (about 3 vertebral bodies)
- b) both kidneys rise and descend several centimeters during respiration
- c) each kidney contains approximately 10 million nephrons**
- d) both kidneys receive about 20-25% of the cardiac output
- e) the right kidney is usually few centimeters lower than the left

The correct answer is c) as each kidney contains 1 million nephrons.

b) is true, but clinically may not be that apparent.

d)-hence in hypovolemia, rapid activation of the renin –angiotensin systems

e)-because of the liver...

17- Causes of polyuria...all are true except

- a) excessive fluid intake
- b) early stage of chronic renal failure
- c) tubulointerstitial diseases
- d) heavy smoking**

Smoking stimulates ADH secretion

18- Renal biopsy....all are indications except

- a) unexplained acute renal failure
- b) chronic renal failure with normal sized kidneys
- c) atypical childhood nephrotic syndrome
- d) isolated hematuria with normal looking RBCs**
- e) nephrotic syndrome in adults

Isolated hematuria with Dysmorphic RBCs (glomerular hematuria)

19- Causes of DARK urineall are true except

- a. All cases of porphyria
- b. Intervertebral discs calcification with dark ears
- c. Parkinsonian patient
- d. Pulmonary TB patient
- e. Massive crushing trauma patient

The correct answer is a : not all cases ...some types don't not discolor urine.

- b-Alkaptonuria
- c-He is on L-dopa
- d-He is on rifampicin
- e-Myoglobinuria

20- As regard to acute renal failure :

- a) Pre renal causes are uncommon
- b) 80% of intrinsic renal causes are due to acute tubular necrosis**
- c) Underperfusion causes of ARF are usually irreversible
- d) 25% of intrinsic renal causes are due to acute glomerulonephritis.

- a : The commonest
- b: TRUE, toxic and ischemic type
- c: Almost always reversible
- d: 5 % only and 10 % for interstitial diseases

21- Rapid respiratory rate in acute renal failure may be due to all but one of the followings

- a) Acidosis
- b) Pulmonary edema
- c) Chest infection
- d) Hyperkalemia**

22- In microalbuminuriaall are true except

- a) Is defined as proteinuria between 30-300 mg / day
- b) Is defined as proteinuria between 20-200 microgram / minute
- c) Always protein dipstick negative
- d) Important in the follow up of type II not type I diabetes mellitus**
- e) Persistent proteinuria has been associated with the development of atherosclerosis

The correct Answer is d : It is very important in the follow up of both types of diabetes.

23- In Drug and toxin induced renal disease ...the following associations are true except

- a) NSAIDs and minimal change nephropathy
- b) Ciclosporin and chronic interstitial nephritis
- Lithium and nephrogenic diabetes insipidus

c) Cisplatin and renal loss of sodium

Cisplatin induces loss of magnesium through tubular dysfunction mechanism.

24- Risk factors for renal stone formation...all are true except

- a) hypercalciuria
- b) hyperoxaluria
- c) hypercitraturia**
- d) hyperuricosuria
- e) cystinuria

- Hypercitraturia is protective, citrate is an inhibitor of calcium crystal formation.

- Hyperuricosuria (excessive amounts of uric acid in the urine), hypercalcuria & hyperoxaluria are true.

25- In acute interstitial nephritis ...all are true except

- a) The commonest cause is drug induced
- b) Blood eosinophilia is seen only in 30 % of cases & eosinophiluria is seen up to 70%
- c) Should be suspected in any non-oliguric acute renal failure
- d) Predominant infiltration of the tubulo-interstitium with eosinophils on renal biopsy is more suggestive of a viral etiology.**

The correct answer is d : suggestive of a drug induced etiology

26- Chronic interstitial nephritis may be caused by all of the following EXCEPT

- a) Multiple myeloma
- b) Cadmium
- c) Ciclosporin
- d) Hanta virus infection**
- e) Wilson disease

• The correct answer : d) Hanta virus infection is a cause of ACUTE interstitial nephritis.

• Notice that Wilson disease may cause chronic interstitial nephritis as well as causing proximal RTA and Fanconi syndrome.

27- In Renal biopsy with immunofluorescence staining looking for immune depositsall are true findings of the suggested disease...except

- a) Minimal change disease – non immune deposits
- b) Membranous nephropathy –granular subendothelial IgG**
- c) IgA nephropathy – mesangial IgA deposition
- d) Type II membranoproliferative glomerulonephritis – intramembranous dense deposits

The correct answer : b) Membranous nephropathy will show granular subepithelial IgG deposition.

Lupus nephritis & type I membranoproliferative glomerulonephritis will show subendothelial deposits.

28- Hemoptysis is found in all of the following EXCEPT

- a) Goodpasture's syndrome
- b) COPD**
- c) Bronchogenic carcinoma
- d) Bronchiectasis

29- In glomerulopathies ... all are true except *

- a) Minimal change disease is associated with HLA DR7, atopy and drugs
- b) Membranous nephropathy is associated with HLA DR3, drugs and heavy metals
- c) Association with liver disease has been documented in IgA nephropathy
- d) Membranoproliferative glomerulonephritis type I is associated with C3 nephritic factor and partial lipodystrophy**
- e) Focal segmental glomerulosclerosis is associated with obesity, HIV infection and heroin abuse.

- Correct answer : d) Membranoproliferative glomerulonephritis type II is associated with C3 nephritic factor and partial lipodystrophy.
- Type I is associated with hepatitis B, cryoglobulinemia, and bacterial infections. Also Goodpasture's syndrome is associated with HLA DR15 (previously HLA DR2).

30- Causes of hypo-complementemia in inflammatory nephritis includes all of the followings except

- a) SBE
- b) SLE
- c) Post-infectious glomerulonephritis
- d) Microscopic polyangiitis**

Correct answer : d) Remember; systemic necrotizing vasculitis is pauci-immune and does not produce hypocomplementemia.

31- In stage 5 chronic kidney disease, the GFR falls below :

- a) 20
- b) 10
- c) 15**
- d) 5

32- Blood level of all rises in ARF except

- a) Uric acid
- b) K
- c) Na**
- d) Creatinine

33- All are true in ARF except

- a) Increased urea
- b) Increased H⁺
- c) Increased Ca**
- d) Increased K

34- Fruity odour in urine is found in

- a) UTI
- b) DKA**
- c) Alkaptonuria
- d) Chyluria

35- Which is not a neuromuscular complications of uremia

- a) Encephalopathy
- b) Myelopathy**
- c) Neuropathy
- d) Myopathy

36- Which is not a criterion for diagnosis of nephritic syndrome

- a) Hypertension**
- b) Massive Proteinuria
- c) Anasarca
- d) Hyperlipidemia

37- Acidic urine is produced in

- a) UTI by Proteus
- b) Renal tubular acidosis
- c) High vegetarian diet
- d) Chronic renal failure**

38- Which of the following does not produce red urine

- a) Hemoglobinuria
- b) Myoglobinuria
- c) Microscopic hematuria**
- d) Acute intermittent porphyria

39- Broad casts are found in

- a) AGN
- b) UTI
- c) Analgesic nephropathy
- d) CRF**

40- Colony count in a symptomatic UTI is more than

- a) $10^3/\text{mL}$
- b) $10^4/\text{mL}$
- c) $10^5/\text{mL}$**
- d) $10^2/\text{mL}$

41- AGN may be produced by all except :

- a) Hepatitis B
- b) Malaria
- c) Kala-azar**
- d) Pneumococcus

42- Isolated hematuria is not found in

- a) Renal TB
- b) Papillary necrosis
- c) Acute glomerulonephritis**
- d) Sickle-cell nephropathy

43- Complement C3 is characteristically low in all except

- a) Membranoproliferative GN
- b) SLE
- c) Focal glomerulosclerosis**
- d) Post streptococcal GN

44- Nephrotic syndrome may be associated with hypertension in all except

- a) SLE
- b) Focal glomerulosclerosis
- c) SBE**
- d) DM

45- Commonest renal lesion in diabetic nephropathy

- a) Diffuse glomerulosclerosis**
- b) Chronic interstitial nephritis
- c) Arterinephrosclerosis
- d) Nodular glomerulosclerosis

46- Which is false regarding Berger's disease

- a) Recurrent hematuria
- b) ↑ serum IgA
- c) It may represent a form of Henoch Schonlein purpura
- d) ↓ Complement level**

47- Complete anuria is found in

- a) Diffuse cortical necrosis**
- b) Acute gastroenteritis
- c) Acute renal failure
- d) Acute interstitial nephritis

48- Which metal is not responsible for development of nephritic syndrome

- a) Gold
- b) Iron**
- c) Mercury
- d) Lead

49- Absolute indication for dialysis

- a) Serum K level > 6 mEq/L
- b) Serum urea level > 200 mg/dL
- c) Serum creatinine > 4 mg/dL
- d) Clinical evidence of pericarditis**

50- Which is not typical association in adult polycystic kidney disease

- a) Polycythemia
- b) VSD**
- c) Nephrolithiasis
- d) Berry aneurysms

Dr. Ahmed Mowafy

Endocrinology revision

Enumerate : written & oral

1. Causes of Cushing syndrome.
2. Causes of secondary diabetes.
3. Causes of stunted growth (Dwarfism, short stature). P14
4. Three life threatening infections in diabetics.

☠️ Malignant otitis externa :

- It is an uncommon but potentially life-threatening infection, almost always due to *Pseudomonas aeruginosa*.
- Patients report a history of weeks to months of severe pain, otorrhea, and hearing loss. Intense cellulitis is combined with edema of the ear canal.
- CT and MRI studies are essential for defining the extent of bone and soft-tissue involvement.

☠️ Rhino-cerebral mucormycosis :

- Mucormycosis is a life-threatening fungal infection.
- Patients present with facial or ocular pain and nasal obstruction followed by proptosis and loss of visual acuity. Generalized malaise and fever, necrotic turbinates may be found.
- Treatment consists of surgical debridement of the involved sinuses and prolonged intravenous therapy with amphotericin B.

☠️ Emphysematous cholecystitis :

- It is a severe form of acute cholecystitis characterized by gas production in the gallbladder wall. *Clostridium* spp. are often isolated from bile cultures in addition to other enteric flora.
- It is frequently associated with gangrene, perforation, and death.
- Diagnosis involves the demonstration of gas within the lumen or walls of the gall bladder by ultrasound or CT scan.
- Surgical intervention is necessary in addition to broad-spectrum antibiotics.

5. Endocrinal causes of short stature. P 14
6. Causes of hypercalcemia.
7. Identify the TWO most common causes of hypercalcemia
 - Primary hyperparathyroidism 55%
 - Malignancy 30%
8. Causes of hypocalcemia.
 - Chronic renal failure.
 - Vitamine D deficiency.
 - Hypoparathyroidism.
 - Hyperphosphatemia.
 - Acute pancreatitis.
9. Causes of fasting hypoglycemia
10. Causes of hirsutism.
11. Causes of gynaecomastia.
12. Causes of tetany.
13. Causes of hypoadrenalism.
14. Causes of hypothyroidism.
15. Causes of obesity.
16. Causes of loss of weight inspite of good appetite. P 110
17. Causes of nephrogenic DI.
18. Causes of hyperprolactinemia.
19. Endocrinal causes of hypertension.
20. Side effect of metformin.
21. Endocrinal causes of abdominal pain.

22. Acquired causes of hyperlipidemia

- Hypothyroidism
- DM
- Obesity/metabolic syndrome
- Primary biliary cirrhosis
- Nephrotic syndrome
- Diet high in saturated fat
- Drugs : anabolic steroids , beta blockers , thiazides ...

23. Criteria for good diabetic control. P86

24. Laboratory tests for hyperthyroidism.

25. Plain X-ray skull in a case of acromegaly.

- Widening of sella turcica and erosion of posterior clinoids.
- Widening of nasal sinuses.
- Prominent supraorbital ridges & occipital protuberance.
- Prognathism with wide separation of teeth.

26. Define Impaired glucose tolerance :

Patients with levels between 140 and 199 mg/dL , 2h postprandial or random blood glucose.

27. Genetic syndromes associated with diabetes

- Down's syndrome.
- Turner's syndrome.
- Friedreich's ataxia
- Myotonia dystrophy.

28. Criteria for diagnosis of diabetes mellitus

- Classic symptoms of hyperglycemia PLUS random glucose of > 200 mg/dL
- Fasting plasma glucose of 126 mg/dL or greater on TWO separate occasions.
- 2 hours postprandial glucose of 200 mg/dL or greater confirm the presence of diabetes.

29. Acute diabetic complications :

- Hypoglycemia
- DKA
- HHNK state
- Lactic acidosis.

30. Clinical stage of diabetic nephropathy

31. Skin complications of DM

32. Cardiovascular , neurological , urogenital complications of DM.

33. Causes of diarrhea in diabetes mellitus. ABCD

- **A**utonomic neuropathy.
- **B**acterial overgrowth.
- **C**eliac disease (autoimmune).
- **D**rugs : e.g. metformin induced diarrhea.

34. What is the explanation for raised prolactin level in a case of acromegaly?

It is explained by damage to pituitary stalk → loss of inhibitory regulation of prolactin secretion by the hypothalamus.

35. Endocrinopathies ,that may be associated with hyperglycemia.

- Acromegaly
- Cushing's syndrome
- Pheochromocytoma
- Thyrotoxicosis.
- Somatostatinoma , glucagonoma.

33- Causes of precocious puberty.

- In boys : puberty before age of 9 is considered precocious.
- In girls : Breast development or pubic hair with onset < 7 years.

I. Isosexual precocity :**a) Central : (Gonadotropin - dependent precocious puberty) :**

- It is caused by premature activation of GnRH
- Causes :
 - Idiopathic (constitutional).
 - Hypothalamic hamartoma : produces pulsatile gonadotropin-releasing hormone (GnRH).
 - Damage to the inhibitory system of the brain : due to infection, trauma, or irradiation.

b) Peripheral : (Gonadotropin - independent precocious puberty)

- Androgen from testis or adrenal gland is increased but gonadotropin is low.
- Causes :
 - Congenital adrenal hyperplasia.
 - Gonadal tumors (such as arrhenoblastoma)
 - Adrenal tumors.
 - Germ cell tumor.
 - McCune–Albright syndrome : is a genetic disorder of bones, skin pigmentation and hormonal problems along with premature puberty.
 - Exogenous sex steroid administration.

II. Heterosexual : Refers to the premature development of estrogenic features in boys, such as breast development.

Diagnostic criteria of precocious puberty :

- Breast development in boys before appearance of pubic hair or testicular enlargement.
- Pubic hair or genital enlargement (gonadarche) in boys with onset before 9 years.
- Pubic hair (pubarche) before 8 or breast development (thelarche) in girls with onset before 7 years.
- Menstruation (menarche) in girls before 10 years.

34- Criteria & causes of delayed puberty.

- In girls :
 - No breast development by 13 years, or
 - No menarche by 3 years after breast development (or by 16).
- In boys :
 - No testicular enlargement by 14 years,
 - Lack of pubic hair by age of 15, or
 - More than 5 years to complete genital enlargement.

Causes :

- a) Constitutional delay : it runs in families. (The most common)
- b) Systemic disease, e.g. chronic renal failure, thalassemia major.
- c) Undernutrition e.g. anorexia nervosa, zinc deficiency.
- d) Hypothalamic defects e.g. Kallmann syndrome, craniopharyngioma
- e) Pituitary defects e.g. hypopituitarism.
- f) Gonadal defects e.g. Turner syndrome, Klinefelter syndrome, Testicular failure due to mumps orchitis.
- g) Endocrine disorders e.g. hypothyroidism, Cushing's syndrome.

GIVE A SHORT ACCOUNT ON

1. Management of DKA
2. Clinical picture & treatment of hypoglycemic coma.
3. Different types of insulin.
4. Indications , adverse effects of insulin.
5. Diabetic nephropathy.
6. Diabetic neuropathy
7. Microvascular complications of DM
 - Retinopathy - nephropathy - neuropathy
8. Oral hypoglycemic drugs
9. Management of type II diabetes (drug details needed)
10. Diagnosis , treatment of hyperthyroidism.
11. Diagnosis & treatment of hypothyroidism.
12. Thyroid emergencies
 - Thyrotoxic crisis (thyroid storm)
 - Myxedema coma
13. Clinical picture , investigations & treatment of primary hyperparathyroidism.
14. Management of Cushing's syndrome.
15. Causes , Clinical picture , Investigations & treatment of chronic adrenal failure.
16. Acute adrenal failure
17. Hazards of obesity.
18. Diagnosis , treatment of acromegaly.

19. Pituitary apoplexy.

- Def : sudden enlargement of the pituitary by hemorrhage into the tumor
- C/P :
 - Pressure manifestations : Headache , vomiting , visual defect .
 - Panhypopituitarism :
- Investigations :
 - Lab : evaluate pituitary hormones , electrolytes , glucose.
 - Imaging : CT , MRI (MRI is the most sensitive)
- TTT : Replacement therapy , Transsphenoidal surgical decompression of the tumor. *See panhypopituitarism*

20. Sheehan syndrome.

21. Management of tetany.

22. DD of polyuria.

23. DD of short stature.

24. DD of hypercalcemia.

25. DD of skin pigmentation.

Other new therapy for diabetes : ***Pramlintide :**

- Is synthetic amylin analogue.
- Used in type 1 or insulin requiring type 2 DM.
- Given with current diabetic regimen.
- Mode of action : Pramlintide injected SC just before a meal slows gastric emptying & suppresses glucagon but doesn't alter insulin levels.
- S/E : nausea , vomiting , frequent dosing injection (3 times daily)

Oral hypoglycemic agents :**1- Sulfonylureas :****2- Biguanides (Metformin)****3- Alpha glucosidase inhibitors : Acarbose (glucobay)**

- Prevent breakdown of CHO in intestine ⇒ ↓ glucose absorption.
- Disadvantage : Contraindicated in hepatic patient , abdominal pain.

4- Glinides : Repaglinide , Nateglinide.

- Stimulate secretion of insulin from beta cells.
- Rapid onset & short duration , acts on post prandial hyperglycemia.

5- Thiazolidinediones : (Rosiglitazone)

- Increases insulin sensitivity
- Can be combined with sulfonylurea , metformin or insulin.
- Advantage : improve diabetic dyslipidemia.
- Disadvantage :
 - Contraindicated in mild liver impairment.
 - Given cautiously to patient with heart failure , renal impairment.
 - Weight gain , mild edema.

NB : all oral hypoglycemic drugs are given cautiously to patient with hepatic, renal & heart failure.

Endocrine doses

1- DM :

- **Dose of insulin** : P 80
- **DKA** : P 75 don't forget the doses of the following :
 - i- Short acting insulin : 5 – 10 U / hour infusion
When blood glucose < 250 mg/dl : reduce insulin to 2 – 4 U / hour.
 - ii- Fluid therapy : 6 – 8 L is usually required.
At first saline is given , then change to glucose 5 % when blood glucose < 250 mg/dl.
 - iii- K therapy : add 20 – 40 m.eq to each 1 L of fluid.

2- SRG :

Caushing : Suppression test : by dexamethazone

- Small dose : 0.5 mg / 6h for 2 days
- Large dose : 2 mg / 6h for 2 days

Addison :

- Cortisone : 7.5 mg / d
- Flurocortisone : 0.1 – 0.2 mg/d

Addisonian crisis : Hydrocortisone : 50 mg / 6h

NB : Dexamethasone 2mg IV is indicated before or during ACTH test because it will not interfere with plasma cortisol assay.

3- Thyroid :

- **Antithyroid drugs** :

- Methyl thyouracil : **200** mg tds then reduce after 2 months to **100** mg tds for 2y
- Propyl thyouracil : **100** mg tds then reduce after 2 months to **50** mg tds for 2 y
- Carbimazole : **20** mg tds then reduce after 2 months to **10** mg tds for 2 years

Thyrotoxic crisis :

- ◇ Propyl thyouracil : 200 mg / 4 h orally , rectally or nasogastric.
- ◇ Propranolol : in full dose (1mg/ 5 min IV then 100 mg / 6h orally)

Hypothyroidism :

L thyroxin : start with 50 µg/d & gradually up to 100 – 200 µg /d orally

Myxedema coma : Thyroxine 250 µg IV

Cases

1- Male patient of 42 years old, presented with parasthesia in his hands & feet of 6 months duration. During this period he was admitted to the emergency hospital with disturbed level of consciousness and left sided body weakness. He was fully investigated and received medical treatment and discharged well after one week. He advised to be kept on special diet regimen and specific drug (injection) used daily. He gave history of palpitation & fainting attacks on standing. Clinical examination revealed cachexia, white patches over the tongue. Pulse 98b/m, BP standing 140/85 and recumbent 180/105 mmHg. Heart accentuated S2 with ejection systolic murmur over the mitral area, Liver was enlarged 2 fingers with rounded border but not tender. Neurological examination revealed superficial & deep sensory affection.

- a) What is the provisional diagnosis ?
- b) Give an explanation to symptoms & signs in this patient.
- c) If there are other complications to the primary disease ?
- d) What is the pathogenesis of these complications ?
- e) What are the investigations suggested for diagnosis ?

a) This is a case of complicated DM and hypertension.

b)

- ✓ Peripheral neuropathy : parasthesia of hands & feet
- ✓ Autonomic neuropathy : fainting & postural hypotension & tachycardia.
- ✓ Monilial infection : white patches over the tongue.
- ✓ Accentuated S2 is due to hypertension
- ✓ Ejection systolic murmur is due to functional AS

c) complications of DM see endocrinology book

d) pathogenesis of DM & its complications

- ✓ Metabolic
- ✓ Recurrent infections.

- ✓ Vascular : micro & macro angiopathies
- ✓ Biochemical : accumulation of sorbitol ⇒ neuropathy.

e) Investigations : see endocrinology book

2- Female patient aged 32 years presented with backaches and fatigability with polyuria. She was overweight. BP 140/100 mmHg. Fasting blood glucose 200mg%

- a) Mention 4 signs that help the diagnosis.
- b) What is the possible diagnosis and differential diagnosis ?
- c) How would you treat such case ?

a)

- ✓ Plethoric face.
- ✓ Hirsutism and acne may be apparent in female
- ✓ Pigmentation & purpura.
- ✓ Trunkal obesity with stria rubra.
- ✓ Moon face : rounded face , bloated cheeks.
- ✓ Muscle wasting & weakness.

b)

Possible diagnosis : **Cushing's syndrome**

DD :

- ✓ Obese hypertensive diabetic patients.
- ✓ Female taking oral contraceptive pills.
- ✓ Chronic alcoholism.
- ✓ Frolich's syndrome : trunk obesity , hypogonadism , polyphagia.
- ✓ Differentiate between 1ry & 2ry Cushing. (.....)

c) Treatment of Cushing : see endocrinology book p 53

3- A 40-year-old man is seen because of headaches, muscle aches, and chronic low back and joint pain. As he enters the office, you notice his coarse facial features, frontal bossing, and large jaw. When you shake his hand, you find he has large, doughy, sweaty palms and, when he smiles, you note his teeth are widely spaced. He has not seen a physician in 10 years and is taking no medications. His back and joint pain have been worsening for 6 years, but his headaches started 6 months ago. His physical examination findings are significant for a BP of 150/100 mm Hg, pulse of 60 per minute, and respiratory rate of 12 per minute.

He returns in 2 weeks with old photographs that confirm a change in his physical appearance over time, and the laboratory test results confirm your clinical impression.

- a) What is your initial diagnosis in this patient?
- b) Besides the back and joint pain and the headaches, what other symptoms would you look for to confirm or refute your diagnosis?
- c) Besides the physical features you observe initially, what other abnormalities would you look for on physical examination?
- d) What laboratory tests should be performed initially?
- e) What additional testing should be performed once the initial laboratory results are known?
- f) What is the preferred treatment in this patient?

a) What is your initial diagnosis in this patient?

Acromegaly.

b) Besides the back and joint pain and the headaches, what other symptoms would you look for to confirm or refute your diagnosis?

Other symptoms to look for in this patient include a change in glove, ring, and shoe sizes, spaces between the teeth, decreased libido and impotence, sweating, new snoring, polyuria, polydipsia, and a change in vision.

c) Besides the physical features you observe initially, what other abnormalities would you look for on physical examination?

Other physical features to look for in this patient include thick coarse skin, enlarged extremities and organs, entrapment neuropathies, visual field abnormalities, and decreased body hair and testicular size. Old pictures would confirm the clinical suspicion.

d) What laboratory tests should be performed initially?

Initial laboratory tests in this patient would consist of the measurement of **IGF-1** (somatomedin C) and fasting GH levels. If the levels are elevated it would suggest the diagnosis of acromegaly, which would be confirmed if the GH levels did not suppress to less than 2 ng/mL in response to a glucose load (suppression test)

e) What additional testing should be performed once the initial laboratory results are known?

1. Investigations for the function of GH e.g. fasting blood sugar test should be performed to rule out diabetes.
2. Pituitary tests should include measurement of the prolactin, FSH, LH.
3. MRI scan can show the extent of the tumor, and formal visual field testing should be performed.
4. Echocardiography and colonoscopy should be performed to evaluate for cardiomegaly and colon polyps.

f) What is the preferred treatment in this patient?

1. The preferred initial treatment is surgical removal of the tumor.
2. Bromocriptine or a somatostatin (octreotide) analog may be useful as medical adjuncts.
3. Radiation therapy may be indicated for the destruction of residual tumor. Postoperative hormonal testing is indicated to reassess pituitary function.

4- A known diabetic patient was brought to the hospital in coma.

- Enumerate the probable causes.
- How would you differentiate between the 2 most common causes of coma in diabetic patient aged 20 years ?

Answer : b) DKA & hypoglycemic coma : see endocrine book

5- A woman aged 55 years old, her weight is 95 kg & her height is 160 cm. She was discovered by chance to be diabetic.

- What are the laboratory criteria for diagnosis of DM?
- Discuss oral anti-diabetic drugs ?
- Describe one method by which you can know if she is obese.
- Enumerate the hazards of obesity.

The answer : Needless to say that she is **type 2 DM**

c)

Diagnosis of obesity :

1- Body Mass Index (BMI) :

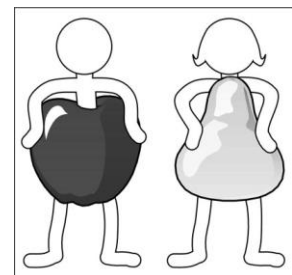
$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2(\text{m}^2)}$$

BMI	Classification
18.5 – 25	normal weight
25 – 30	overweight
30 – 35	class I obesity
35 – 40	class II obesity
Over 40	class III obesity

2- Skin fold thickness e.g. over triceps (N : 20 mm in ♂ , 30 mm in ♀).

3- Estimation of body fat : (Waist / hip ratio)

- Central obesity : more fat in the upper body (*Apple shaped*) , associated with more morbidity .
- Peripheral obesity : more fat in lower body (*pear shaped*) , associated with less morbidity .



6- A male diabetic patient 30 years old who received his usual insulin therapy in the morning, but he neglected to take his breakfast, short time later he got blurring of vision, irritability, excessive sweating, then he passed into coma.

- a) What is the diagnosis ?
- b) How can you prove your diagnosis ?
- c) How can you treat this patient ?
- d) What are the possible other causes of such diagnosis ?

7- A 25 year old pregnant female developed severe post-partum hemorrhage which was successfully controlled. The baby was artificially fed as his mother's breast failed to secrete milk. The mother began to feel weak and she noticed atrophy of her breasts.

- a) What is the most probable diagnosis ?
- b) What is the expected BP of the patient ?
- c) How to prove your diagnosis by investigations ?

Three drugs were prescribed after the results of investigations were known, but the patient started only by one of them, in order not to distress her stomach. Next day the patient complained of severe abdominal colic, vomiting and diarrhea. Her BP was dropping rapidly and she became irritable and confused.

- d) What is your diagnosis ?
- e) How to manage the case ?

The answer :

- a) Sheehan syndrome.
- d) Acute adrenal failure.

8- A 60 year old woman comes to the emergency room in a coma. The patient's temperature is 35°C. She is bradycardiac. Her thyroid gland is enlarged. There is a bilateral hyporeflexia.

- a) What is the most probable diagnosis ?
- b) What is the clinical signs and symptoms you should look for in this patient ?
- c) What are the predisposing factors and what is the management of this case ?

a) Myxedema coma.

c) Predisposing factors : exposure to cold, infection, trauma, and CNS depressants.

9- A 42 years-old female presents with polyuria and polydipsia that proved to be due to diabetes mellitus diagnosed for the first time. The physician noticed enlargement of the hands and feet, deep voice, greasy skin, prognathism and enlargement of the tongue.

- a) What is the most probable diagnosis ?
- b) What are the investigations necessary to confirm your diagnosis ?
- c) What are the cardiovascular and neurological effects of the condition?
- d) What is the medical treatment of this patient ?

a) Acromegaly.

c)

Cardiovascular :

- ➡ Hypertension, cardiomegaly, conduction defects and arrhythmias, Raynaud's

Neurological :

- ➡ Carpal tunnel syndrome.
- ➡ Peripheral neuropathy.
- ➡ Neuropathies secondary to DM.
- ➡ Spinal cord compression.
- ➡ Proximal myopathy.
- ➡ Pressure manifestations of the tumor in the skull.

MCQ

1- A 66 -year old man with type 2 diabetes notices painless skin lesions on his legs. They have an irregular raised border with a flat depressed center that is hyperpigmented brown in color. What is the most likely diagnosis?

- a) Necrobiosis lipoidica.
- b) Pyoderma gangrenosa.
- c) Erythema multiforme.
- d) Candidiasis.

2- Which of the following best describes the effect of propylthiouracil on thyroid hormone production?

- a) It inhibits uptake of iodide by thyroid cells.
- b) It blocks the release of hormones from the thyroid glands.
- c) It prevents the release of thyroid hormone from thyroglobulin.
- d) It blocks iodination and coupling of tyrosines.

3- A 53-year old woman with a past medical history of chronic kidney disease due to diabetic nephropathy is noted to have hyperphosphatemia & hypocalcemia. The disturbance is likely a result of metabolic bone disease seen in patients with chronic kidney disease. Which of the following findings is most likely associated with this electrolyte disturbance?

- a) Lethargy.
- b) Neuromuscular irritability.
- c) Anorexia, nausea and vomiting.
- d) Tachyarrhythmias.

4- Which of the following is the most common manifestation of multiple endocrine neoplasia, type 1 (MEN 1)?

- a) An adrenal adenoma.
- b) Primary hyperparathyroidism.
- c) Acromegaly.
- d) Islet cell tumor of the pancreas.

5- A 7-year- old boy has demineralized bones with pseudofractures seen on x-rays. Physiologic doses of vitamin D don't result in improvement. Which of the following is most likely to be associated with the syndrome?

- a) Hyperphosphatemia.
- b) Low vitamin D levels.
- c) Alopecia
- d) Mental retardation.

6- Hyperthyroidism can be treated by all but which one of the following?

- a) Triiodothyronine.
- b) Iodide.
- c) Methimazole.
- d) Propylthiouracil.

7- Which of the following is the most likely metabolic effect of insulin on adipose tissue?

- a) Decrease in lipolysis.
- b) Decrease of glucose transport.
- c) Decrease in lipoprotein lipase.
- d) Decrease in glucose phosphorylation.

8- A 15-year- old youth has not gone through puberty. Which of the following is the most likely diagnosis?

- a) Inadequate diet.
- b) Normal variation.
- c) Pituitary tumor.
- d) Drug side effects.

9- Insulin is contraindicated in :

- a) Type 1 DM
- b) Complicated type 2 DM
- c) DM with pregnancy.
- d) Hypoglycemic coma.

10- Hypoglycemia is characterized by all the following EXCEPT

- a) Blurring of vision.
- b) Headache.
- c) Dry skin
- d) Pupillary dilatation.

11- Gynecomastia may be seen in all the following EXCEPT

- a) Newborn infants
- b) Klinefelter's syndrome
- c) Hypopituitarism.
- d) Turner's syndrome

12- Secretion of which of the following hormones does not primarily occur at night

- a) Insulin
- b) Growth hormone
- c) Melatonin
- d) Prolactin

13- Earliest changes observed by ophthalmoscope in background retinopathy in diabetes

- a) Venous dilatation
- b) Microaneurysms
- c) Increased capillary permeability
- d) Arterio-venous shunts

14- Which is NOT a part of metabolic syndrome X

- a) Hyperlipidemia
- b) Obesity
- c) Ischemic heart disease
- d) Hypertension

15- Thiazolidinedione group of antidiabetic is

- a) Voglibose
- b) Nateglinide
- c) Rosiglitazone
- d) Glimepiride

16- All are features of diabetic ketoacidosis EXCEPT

- a) Hyperthermia
- b) Drowsiness
- c) Dehydration
- d) Air hunger

17- Commonest cause of coma in a diabetic is

- a) DKA
- b) Lactic acidosis
- c) Hyperosmolar hyperglycemic non ketotic coma
- d) Hypoglycemia

18- A patient of impaired fasting glucose ranges blood glucose value in between

- a) 96 - 106 mg/dL
- b) 106 - 116 mg/dL
- c) 100 - 125 mg/dL
- d) 116 - 130 mg/dL

19- Microalbuminuria is urinary albumin excretion ratio between

- a) 10 - 20 $\mu\text{g}/\text{min}$
- b) 20 - 200 $\mu\text{g}/\text{min}$
- c) 30 - 300 $\mu\text{g}/\text{min}$
- d) 40 - 400 $\mu\text{g}/\text{min}$

20- Myxedema coma is characterized by

- a) Hypertension
- b) Tachycardia
- c) Euthermia
- d) Hypoventilation

21- Upper segment > lower segment of body is found in all (in dwarfism) EXCEPT

- a) Pituitary dwarf
- b) Cretinism
- c) Achondroplasia
- d) Juvenile myxedema

22- Which cranial nerve is not involved in acromegaly

- a) VIII
- b) III, IV, VI
- c) V
- d) II

23- Pseudo-Cushing's syndrome may be found in all EXCEPT

- a) Myxedema
- b) Chronic alcoholism
- c) Obesity
- d) Depression.

24- Gynaecomastia may be produced after treatment with all EXCEPT

- a) Spironolactone
- b) Digitalis
- c) Cimetidine
- d) Rifampicin

25- Pheochromocytoma is not associated with

- a) Weight gain
- b) Fear of death
- c) Paroxysmal hypertension
- d) Constipation

26- Most common type of carcinoma of the thyroid gland is

- a) Follicular
- b) Anaplastic
- c) Papillary
- d) Mixed (follicular & papillary)

27- Froehlich's syndrome is characterized by all EXCEPT

- a) Infantilism
- b) Truncal obesity
- c) Diabetes mellitus
- d) Mental retardation

28 - Which is not a part of multiple endocrine neoplasia type 1

- a) Pheochromocytoma
- b) Tumor of pituitary
- c) Tumor of pancreas
- d) Hyperparathyroidism

29- Tertiary hyperparathyroidism is commonly found in

- a) Rickets
- b) Pseudohypoparathyroidism
- c) Chronic renal failure
- d) Malabsorption syndrome

30- Commonest cause of thyrotoxicosis is

- a) Multinodular goiter
- b) Hashimoto's thyroiditis
- c) Grave's disease
- d) Well differentiated carcinoma

31- Osmoreceptors are present in

- a) Atria
- b) Kidney
- c) Anterior hypothalamus
- d) Adrenal cortex

32- In Somogyi phenomenon commonly associated with type 2 DM, the dose of insulin should be

- a) Increased
- b) Stopped
- c) Decreased
- d) Needs no change

33- Orlistat is used to treat

- a) Diabetic nephropathy
- b) Gout
- c) Obesity
- d) Anorexia nervosa.

34- Commonest cause of unilateral exophthalmos is :

- a) Cavernous sinus thrombosis.
- b) Retrobulbar tumor.
- c) Chloroma.
- d) Thyrotoxicosis.

35- Sleeping pulse rate is NOT increased in

- a) Anxiety neurosis.
- b) Rheumatic carditis.
- c) TB
- d) Atropinised patient.

36- Cardiovascular finding of thyrotoxicosis do not include

- a) Loud S1
- b) Means-Lerman scratch.
- c) Water hammer pulse.
- d) Ejection click.

37- Myxedema is characterized by all EXCEPT

- a) Butterfly rash in face.
- b) Sinus bradycardia.
- c) Solid edema.
- d) Madarosis.

38- Acromegaly is associated with all of the following EXCEPT

- a) Acanthosis nigricans
- b) Fibromata mollusca
- c) Micrognathia.
- d) Cardiomegaly.

39- Klinefelter's syndrome is characterized by :

- a) Small, soft testes.
- b) Chromosomal pattern 46, XO
- c) Upper segment > lower segment of body.
- d) Gynecomastia.

40- Tall stature is NOT characteristic of

- a) Klinefelter's syndrome.
- b) Marfan's syndrome.
- c) Homocysteinuria.
- d) Turner's syndrome.

41- All of the following are featured by skin pigmentation EXCEPT

- a) Conn's syndrome.
- b) Bronchogenic carcinoma.
- c) Addison's disease.
- d) Hemochromatosis.

42- Medical adrenalectomy is done by all EXCEPT

- a) Aminoglutethimide.
- b) Mitotane.
- c) Mexiletine.
- d) Metyrapone.

43- Sheehan's syndrome presents with

- a) Cardiac failure.
- b) Persistent lactation.
- c) Fever
- d) Cachexia.

44- Hypocalcemia is produced by all EXCEPT

- a) Hysterical hypoventilation.
- b) Acute pancreatitis.
- c) Chronic renal failure.
- d) Osteomalacia.

45- Thyrotoxicosis may be featured by all EXCEPT

- a) Myopathy
- b) Pretibial myxedema.
- c) Hypernatremia.
- d) Atrial fibrillation.

46- Hyperparathyroidism is NOT featured by

- a) Acute pancreatitis.
- b) Nephrocalcinosis.
- c) Palpable neck swelling.
- d) Pseudogout.

47- Malignant hypercalcemia is treated by all EXCEPT

- a) Pamidronate.
- b) Calcitonin
- c) Calcitriol
- d) Glucocorticoids.

48- Commonest cause of Addison's disease is

- a) Granuloma
- b) Idiopathic atrophy
- c) Inflammatory necrosis.
- d) Malignancy

49- Features of Addison's disease do not include

- a) Diarrhea
- b) Dizziness
- c) Dermatitis
- d) Dehydration.

50- Karyotype 47, XYY is

- a) True hermaphroditism
- b) Supermale
- c) Klinefelter's syndrome.
- d) Gonadal dysgenesis.

The answers

1) A

2) D

3) B

4) B

5) C

About 50% of cases of vitamin D-resistant rickets have alopecia. It is a familial disorder (X-linked recessive disorder).

6) A : Triiodothyronine (T3)

7) A

8) B

9) D

10) C

11) D

12) A

13) B

14) C

15) C

16) A

17) D

18) C

19) B

20) D

21) A

22) C

23) A

24) D

25) A

26) D

27) C

- 28) A
- 29) C
- 30) C
- 31) C
- 32) C
- 33) C
- 34) D
- 35) A
- 36) D

Means-Lerman scratch is an uncommon type of heart murmur which occurs in patients with hyperthyroidism. It is a mid-systolic scratching sound best heard over the upper part of the sternum or second left intercostal space at the end of expiration. The murmur results from the rubbing of the pericardium against the pleura in the context of hyperdynamic circulation and tachycardia, and may mimic the sound of a pericardial rub.

- 37) A

Madarosis : hair loss of the eyebrows (superciliary madarosis) or loss of eyelashes (ciliary madarosis).

- 38) C
- 39) D
- 40) D
- 41) A
- 42) C

✎ Aminoglutethimide : antisteroid drug.

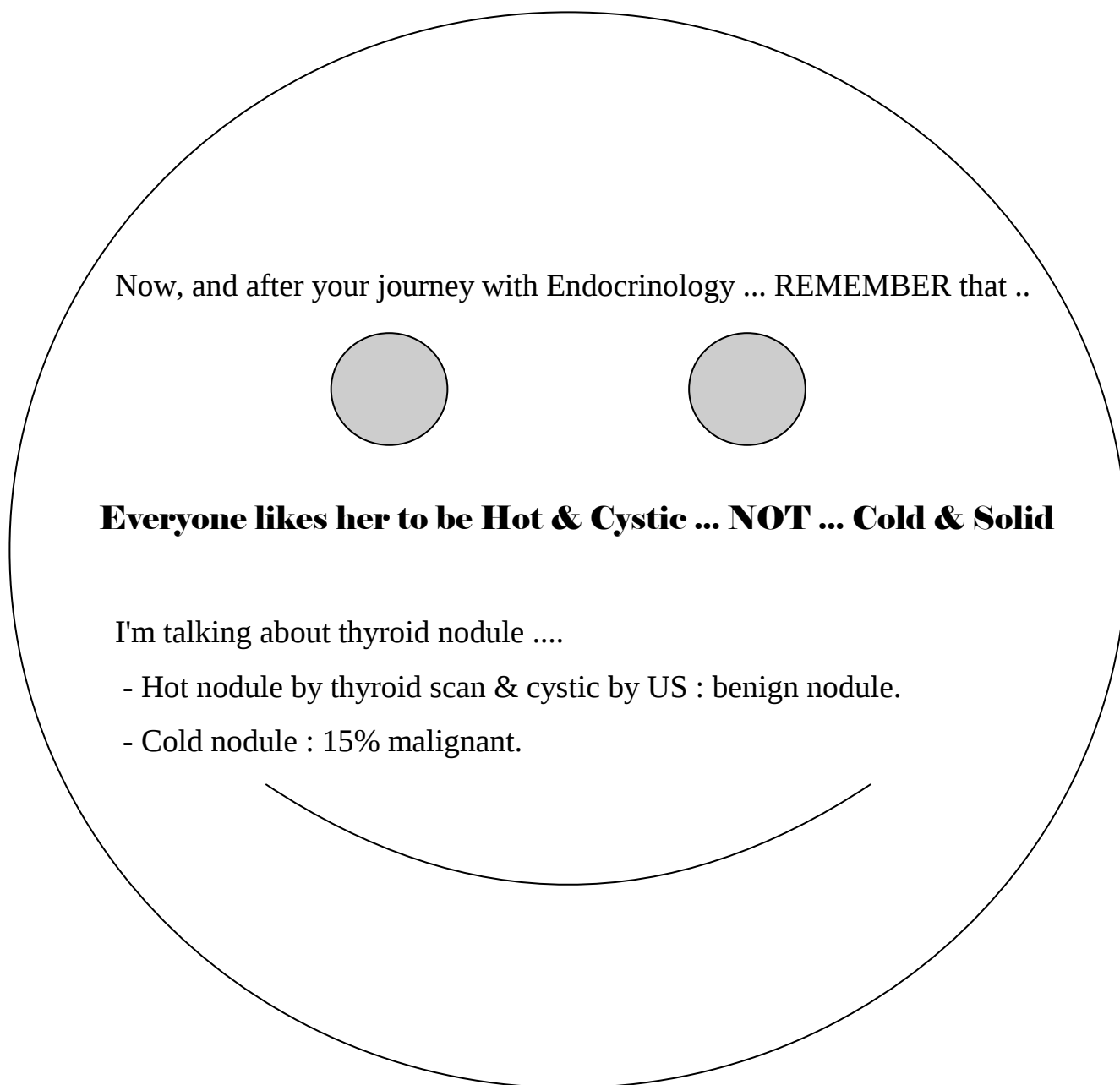
✎ Mitotane : anti-neoplastic drug used in the treatment of adrenocortical carcinoma.

✎ Mexiletine : Class IB anti-arrhythmic.

✎ Metyrapone : it blocks cortisol synthesis by inhibiting steroid 11 β -hydroxylase.

- 43) D
- 44) A
- 45) C

- 46) C
- 47) C , Calcitriol : active vit D, also called 1,25-dihydroxycholecalciferol.
- 48) B
- 49) C
- 50) B
- ➡ Supermale : 47, XYY
- ➡ Klinefelter : 47, XXY 😊



Rheumatology revision

Enumerate :

- 1. Diagnostic criteria of rheumatoid arthritis.**
- 2. Diagnostic criteria of SLE. 2 rash , 2 Lab , 7 P**
- 3. Immune abnormalities in Rheumatoid arthritis** 
 - Rheumatoid factor : 80%
 - ANA : present in some cases, not specific.
 - Anti-CCP : highly specific and sensitive for RA.
- 4. Causes of purpura in a patient with connective tissue disease.**
 - Vasculitis.
 - Cortisone therapy.
 - NSAIDs : platelets dysfunction.
 - Thrombocytopenia : immune mechanism.
 - Amyloidosis.
 - Factor VIII antibodies : SLE, RA.
- 5. Causes of gout.**
- 6. Complications of corticosteroids.**
- 7. Complications of NSAIDs.**
- 8. Uses of chloroquin.**
- 9. Uses of penicillamine.** ال penicillamine ليه استخدامين 
 - RA.
 - Wilson disease.

10. Side effect of aspirin.

- Aplastic anemia & hemolytic anemia.
- Skin rash , salt & water retention.
- Peptic ulcer, Bleeding (inhibition of platelet aggregation).
- Respiratory : induce bronchial asthma.
- Irritation of GIT : nausea, vomiting.
- Nephrotoxicity.

11. Uses of methotrexate in rheumatic diseases.

- Rheumatoid arthritis.
- Juvenil RA.
- Felty's syndrome.
- Psoriatic arthritis.
- Dermatomyositis.
- SLE.
- Still's disease in adult.
- Wegener's granulomatosis.
- Takayasu's arteritis.

12. Side effects of methotrexate.

- ☠ Anemia : folic acid deficiency MCQ
- ☠ Bone marrow failure.
- ☠ Hepatotoxicity.
- ☠ Pruritus.
- ☠ Photosensitivity.
- ☠ pigmentations.
- ☠ Pulmonary fibrosis & interstitial pneumonia.

13. Precautions of methotrexate in a patient with RA.

- Methotrexate for treatment of rheumatoid arthritis should be used on a special dosing regimen requiring rest period. (initial dose is 7.5 to 15 mg once weekly that can be increased by 2.5mg/w every month until symptoms & signs improved or maximum of 30mg/w is reached)
- Patients on methotrexate therapy require regular monitoring to screen for serious complications e.g. CBC , Liver & renal function tests, ...
- The tests are repeated approximately every six weeks so that problems can be detected early.
- There is a small risk of pneumonitis with methotrexate. Patients should report any persistent dry cough to their doctors immediately. X-rays may be required.
- Caution should be used when NSAIDs and penicillin are administered concomitantly with methotrexate. These drugs may enhance its toxicity.
- Avoid alcohol.
- Avoid sun exposure and use high level sunscreen to prevent severe sunburn due to increased sun sensitivity.
- Since methotrexate reduces immune function, precaution should be taken to avoid all kinds of infection.
- Certain side effects such as mouth sores may be reduced by folate supplementation with methotrexate.

14. Joint deformities in rheumatoid arthritis.**15. Extra-articular manifestations of rheumatoid arthritis.****16. Extra-articular manifestations of SLE.**

17. Causes/risk factors of osteoporosis.

- Genetic factor : the single most significant factor.
- ↓ hormones : Estrogen deficiency in females, hypogonadism in males.
- ↑ hormones : Cushing, thyrotoxicosis, hyperparathyroidism.
- Drugs : cortisone, heparin, anticonvulsant, chemotherapeutics.
- Prolonged immobilization.
- Smoking & alcohol intake.
- Others : Inflammatory bowel disease, Chronic liver disease, Malabsorption.

18. Factors associated with poor prognosis of rheumatoid arthritis*

- Acute polyarthritis onset.
- Male patient.
- Extra-articular manifestations.
- Functional disability at one year after start of disease.
- High value of RF (in absence of HCV infection)
- Presence of HLA-DR4
- Radiographic evidence of erosions within 3 years of onset of disease.

19. Extra-skeletal manifestations of Ankylosing spondylitis.

- **A**nterior uveitis.
- **A**ortic regurge.
- **A**pical pulmonary fibrosis.
- **A**myloidosis.
- **A**tlantoaxial subluxation ⇒ spinal cord compression.

20. Classification of lupus nephritis.

- I. Normal glomeruli.
- II. Mesangial affection
- III. Focal proliferative GN.
- IV. Diffuse proliferative GN.
- V. Membranous GN
- VI. Sclerosing GN.

21. Causes of chronic polyarthritis. (> 6 weeks)

- Rheumatoid arthritis.
- SLE.
- Systemic sclerosis.
- Sero -ve arthropathy e.g. Reiter's syndrome, Psoriatic arthropathy.
- Sarcoidosis.
- Chronic gout.
- Polymyositis.
- Osteoarthritis.
- Vasculitis.

22. Causes of acute polyarthritis*

- Acute rheumatic fever.
- Bacterial endocarditis.
- Rheumatoid arthritis : 10% of cases.
- SLE.
- Reiter's syndrome, psoriatic arthritis.
- Viral infection : rubella, hepatitis B, HIV, Epstein-Barr.

23. Causes of monoarthritis. See P36

24. Causes of low back pain.

- Mechanical : Disc prolapsed , Trauma , Lumbar spondylopathy
- Inflammatory : sero-ve arthropathy e.g. ankylosing spondylitis.
- Infections : brucellosis , osteomyelitis, abscess.
- Neoplasm : Metastasis , Primary tumor.
- Referred : Colonic tumors , renal colic , abdominal aorta.

25. Arthritis with diarrhea.

- Reactive arthritis.
- Colitic arthritis.

26. Constitutional symptoms may be seen in RA. See P6

27. Types (*variants*) of scleroderma = scleroderma like conditions. P30

28. Risk factors of amyloidosis.*

- Age : > 50
- Chronic infection or inflammatory disease as RA , FMF
- Family history.
- Multiple myeloma , Hodgkin's disease.
- Kidney disease that has required dialysis for more than 5 years.

29. Precipitating factors of acute gouty arthritis.*

- Excess protein.
- Alcohol.
- Drugs e.g. thiazide, lasix.
- Surgery.
- Trauma.
- Dehydration.

30. Causes of hypouricemia.

Pregnancy, Fanconi syndrome, Drugs e.g. allopurinol.

31. Causes of secondary osteoarthritis.*

- Congenital : hip dislocation.
- Endocrinal : A Cromegaly, m yxedema, hyperparathyroidism, DM
- Metabolic : hemochromatosis.
- Others : end of any inflammatory or infectious disease.

32. Causes of knee pain.

I. Intraarticular :

- Inflammatory : RA, sero-ve arthropathy, pseudogout
- Septic arthritis.
- Osteoarthritis.

II. Extraarticular : Fractures, tumors, trauma, tendonitis.

III. Referred pain : Hip, lumbosacral spine.

33. Causes of neck pain.

- Osteoarthritis.
- Cervical spondylosis.
- Ankylosing spondylitis.
- RA.
- Polymyalgia rheumatic.
- Referred : coronary heart disease.

34. Clinical triad of Reiter's syndrome. AUC

A rthritis, U rethritis, C onjunctivitis, following an infectious dysentery.

(Can't see, can't pee, can't climb the tree).

35. Telescope deformity.

It's due to substantial absorption of metacarpal and phalangeal bone ends.

Involved fingers may be extended or shortened as the telescope.

GIVE A SHORT ACCOUNT ON :

1. Articular manifestations of rheumatoid arthritis.
2. Extra-articular manifestations of rheumatoid arthritis.
3. Investigation of rheumatoid arthritis.
4. Treatment of rheumatoid arthritis.
5. DMARDs

- Group of drugs used in systemic rheumatic disease aiming for minimizing disease activity & progression.
- These drugs are slow acting drugs (their effect takes 4-8 weeks to appear).
- Should be used as early as possible to induce remission & avoid erosive changes.
- Regular monitoring of toxicity is mandatory.
- Mechanism of action : exact mechanism is unknown
 - a. Inhibition of lysosomal enzymes.
 - b. Inhibition of phagocytosis.
 - c. Inhibition of prostaglandins.
 - d. Inhibitory effects on the immune system.
 - e. Some has antimicrobial activity (e.g. sulfasalazine)

i- **Gold salts** : (*Na aurothiomalate*)

- Dose : 50 mg/week **IM** for about 20 weeks (Total dose :1000 mg)
- SE : DHP ☺
 - **D**epression of bone marrow, **D**ermatitis.
 - **H**ypersensitivity.
 - **P**roteinuria.
- Precaution :
 - Stop if proteinuria > 2g /24h
 - Stop if WBCs < 3000 or platelets < 100000

ii- **Penicillamine** : ↓↓ RF

- Dose : 250 mg/d
- Response : within 4-6 months.
- SE : As Gold + SLE.

iii- **Chloroquine** :

- Dose : 250 mg/d
- Response : Within 4-6 months.
- SE : 👁 Retinopathy, Corneal opacity NOT Cataract , Skin rash.
- Precaution : Request fundus examination before use & every 6 months.

iv- **Immunosuppressive drugs** : see rheumatology book .

v- **Sulfasalazine** :

- Mode of action : antifolate.
- Dose : 0.5 - 1 gm/d then increase to 2-3 gm/d over few weeks.
- Side effects : headache, skin rash, GIT irritation, leucopenia, reversible depression of sperm count.

vi- **Biologic agents** : see rheumatology book.

6. Differential diagnosis of rheumatoid arthritis. = DD of polyarthropathy

History & examination are often helpful in narrowing the differential diagnosis e.g.

SLE :

- May have the similar distribution of joint involvement but rarely erosive.
- Clinical manifestations & serological finding are helpful in establishing the diagnosis

Sero-ve spondylopathy :

- Asymmetrical joint involvement.
- Central joints > peripheral joints.
- RF : -ve

Osteoarthritis :

- Absence of systemic inflammatory manifestations
- Onset in later life.
- Pain : ↑ by exercise , ↓ by rest.
- Common joints involved are : Knee, Hips, spine , DIP, PIP , 1st metatarsophalangeal & 1st carpometacarpal joints.
- Normal lab finding & normal ESR.

Chronic gout :

- Early in the course of the disease is monarticular, especially the first metatarsophalangeal joint of the big toe, then tarsal, ankles, knees, wrists and fingers.

Viral infections :

- May result in a polyarthritis clinically mimic RA.
- Skin rash, self limited course.
- It is important to exclude chronic hepatitis & HIV.

7. Clinical picture , investigations, medical treatment of ankylosing spondylitis.

- Clinical picture : ♂ : ♀ = 3 : 1 ☹

a) Arthritis :

- Back pain & stiffness : improved with movement.
- Sacroiliac joints tenderness.
- Decreased spinal mobility.

b) Enthesitis : e.g. Achilles enthesitis.

c) Extraskletal manifestations : 5 A see rheumatology book...wait see above.

- Investigations : Lab , X ray (see book)

Medical ttt :

✎ NSAIDs

✎ TNF blockers.

✎ Sulphasalazine, methotrexate : effective in a case of peripheral joints
not axial spine.

✎ Cortisone (local injection). Oral cortisone has no role.

8. Sero -ve spondyloarthropathies.

9. Clinical picture, investigations, treatment of SLE.

10. Causes, clinical picture, investigations & treatment of osteoarthritis.

11. Causes, management of osteoporosis.

12. Etiology of gout.

13. Complications of gout.

14. Treatment of acute gouty arthritis.

15. Treatment of chronic gout.

16. Clinical features of vasculitic syndromes.

17. Differential diagnosis of monoarthropathy.

18. Differential diagnosis of polyarthropathy.

19. Differential diagnosis of arthritis of small joints of the hand. See p37

20. Differential diagnosis of acute polyarthropathy.

**21. Differentiate between inflammatory & non-inflammatory
arthropathy.** See rheumatology book P 36

22. Differentiate between acute & chronic gouty arthritis.

23. Differentiate between rheumatic & rheumatoid arthritis.

	Rheumatic fever	Rheumatoid arthritis
Etiology	Post-streptococcal pharyngitis	Autoimmune disease
Coarse	< 6 weeks	> 6 weeks
Articular manifestations	Big joints Not erosive	Small joints. Erosive
Extra-articular manifestations		
Investigations		
Treatment	✕ Penicillin for pharyngitis ✕ Aspirin for Arthritis. ✕ Cortisone for Carditis.	

24. Differentiate between Reiter's & Behcet's syndrome.

	Reiter's syndrome	Behcet's syndrome
Male : Female ratio	10 - 1	2 - 1
Ulcers	Painless	Painful
Eye	Conjunctivitis	Uveitis
Spondylitis & Sacroilitis	Frequent	Uncommon
HLA	B27	B27, B5
Role of infection	Play a big role	No role
Treatment	NSAIDs	Immunosuppressive

25. Define reactive arthritis.

Reactive arthritis, one of the seronegative spondyloarthropathies, caused by an infection , but not a direct infection of the synovial space (viable micro organisms CAN NOT be cultured). Incidence is increased in HLA B27 positive individual e.g. Reitter's syndrome.

26. Define arthralgia.

Joint pain without inflammation.

27. Define Osteomalacia.

Soft bones in adults, due to inadequate mineralization of bone, due to defect in vitamin D availability or metabolism.

28. Define Familial Mediterranean fever.

- FMF is an intermittent febrile disorder with inflammatory serositis, arthritis, and rash.
- It is an autosomal recessive disorder, the genetic defect is in the gene MEFV, localized in chromosome 16.

29. Define Cryoglobulinemia.

- Cryoglobulins are circulating immunoglobulins which precipitate in the cold & often associated with hepatitis C infection.
- Typical clinical features include : palpable purpura, urticaria & arthralgia. Less common features include Raunaud's , GN, neuropathy& lymphadenopathy.

Cases

1- 23 year old female , red rash on her face, fever, arthralgia, edema LL ,
Bp 200/110, CBC: anemia with +ve coomb test & leucopenia. Cardiac
examination : pericardial rub. She is on steroid therapy.
Admission to ICU with coma and convulsions.

- a) Explain changes in CBC.
- b) Explain causes of coma.
- c) Mention other diagnostic tests needed.
- d) Mention outline therapy.

a) Explain changes in CBC.

Anemia: auto-immune hemolytic anemia (+ve coomb's test) as SLE is an auto-immune disease.

Leucopenia:

1. Antibody mediated:

- ✓ Anti-neutrophils antibodies
- ✓ Anti-lymphocytes antibodies
- ✓ Anti Ro antibodies

2. Drug induced.

b) Explain causes of coma.

May be due to diffuse cerebritis, vasculopathy, thrombosis or infection.

c) Mention other diagnostic tests needed. See Rheumatology book P 23

d) Mention outline therapy. See Rheumatology book P 24

2- A 52-year-old man comes to the emergency room complaining of pain in his big toe. He was well until 5:00 this morning, when he was awakened by an aching pain in his right great toe. Within a few hours, the joint was dusky red and hot, and was tender. By 8:00 a.m., The patient describes feeling feverish without rigors or chills. There is no history of trauma to the foot, nor is there a family history of arthritis or similar attacks. He is taking hydrochlorothiazide for control of hypertension. On physical examination, the patient is found to be overweight. His blood pressure is 170/100 mm Hg, his pulse is 90 beats per minute and regular, and his temperature is 38°C . Skin examination shows no lesions or nodules. On examination of his joints, all show a normal range of motion without synovitis or deformity, except for the right first MTP joint, which shows synovitis, warmth, tenderness, and erythema at the base of the toe.

The following laboratory values are reported: white blood cell count 12,500 cells/mm³, uric acid 9.0 mg/dL; creatinine 1.0 mg/dL. Urinalysis reveals no red blood cells or protein. A radiographic study of the right foot discloses soft tissue swelling around the right first MTP joint, but no erosions.

- a) How is the diagnosis of gout established?
- b) What are the four reversible secondary causes of hyperuricemia?
- c) In this patient, give 2 risk factors of acute gouty arthritis?
- d) What are the appropriate therapies for an acute attack of gout and chronic symptomatic hyperuricemia?

a) **How is the diagnosis of gout established?**

- The diagnosis of gout requires aspiration of synovial fluid or a tophus for crystal analysis (Monosodium urate crystals).
- In gout, synovial fluid is inflammatory (typically 20,000 to 100,000 leukocytes/mm³).

- The synovial fluid should be sent for Gram's stain and culture as in rare cases, septic joint fluids can contain monosodium urate crystals.
- Elevated serum uric acid levels are not diagnostic of gout as many individuals have asymptomatic hyperuricemia and never develop gout.

b) What are the four reversible secondary causes of hyperuricemia?

The reversible secondary causes of hyperuricemia include :

- Alcohol consumption.
- Diet : containing purine-rich foods e.g. meats.
- Drugs : that decrease the renal excretion of uric acid
(cyclosporine, diuretics, pyrazinamide...).
- Obesity (weight loss can improve hyperuricemia).

c) In this patient, give 2 risk factors of acute gouty arthritis?

- Diuretic intake.
- Obesity.

d) What are the appropriate therapies for an acute attack of gout and chronic symptomatic hyperuricemia?

See gout

3- A 50-year-old woman has had Raynaud's phenomenon of the hands for 15 years. The condition has become worse during the last year, and she has developed arthralgias and arthritis involving the hands and wrists as well as mild sclerodactyly and difficulty swallowing solid foods. Laboratory studies reveal a positive serum antinuclear antibody. Anticentromere antibodies are present in high titers; antiribonucleoprotein antibodies are not detectable.

- a) What is the most likely diagnosis ?
- b) What is the treatment of Raynaud's phenomenon ?*
- c) Raynaud's phenomenon may occur in association with what four rheumatic diseases ?

a) What is the most likely diagnosis ?

Limited scleroderma (CREST syndrome) : calcinosis, Raynaud's phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia.

b) What is the treatment of Raynaud's phenomenon ?*

Raynaud's phenomenon may be controlled by :

- ✎ Ca channel blockers (nifedipine).
- ✎ α blockers.
- ✎ 5-phosphodiesterase inhibitors (sildenafil)
- ✎ Topical nitroglycerine and IV prostaglandin.
- ✎ Low dose aspirin may has a role as adjuvant therapy : prevent platelet aggregation.
- ✎ Digital sympathectomy in severe cases.

c) Raynaud's phenomenon may occur in association with what four rheumatic diseases?

Raynaud's phenomenon may be seen in the settings of scleroderma (90%), MCTD (70%), SLE (20%), or polymyositis/dermatomyositis (20%). When the phenomenon occurs alone, without an associated CTD, it is called Raynaud's disease.

4- A 38-year-old woman is seen because of pain and swelling in the joints of her hands, as well as in her wrists, elbows, and knees. Her symptoms have been intermittent over the last 8 months but have worsened recently and become more prolonged. The pain and swelling have been accompanied by hand stiffness in the morning, frequently lasting for 2 hours or more, and she has noted return of the stiffness later in the day after periods of inactivity. She also complains of progressively worsening fatigue and lack of energy. She denies rash, photosensitivity, alopecia, oral ulcers, or symptoms of Raynaud's phenomenon. On physical examination, swelling, warmth, and tenderness are noted in several MCP and PIP joints bilaterally. Small effusions are present in both knees. Tenderness is elicited over several MTP joints in both feet. Examination of the skin reveals the presence of several subcutaneous nodules over the proximal extensor aspects of both forearms.

a) What is the primary pathophysiologic process in RA?

See rheumatology book p 6

b) What are four characteristic radiographic findings in RA, and what are the mechanisms responsible for their development?

- i. Soft tissue swelling : is due to the inflamed, proliferative synovitis.
- ii. Joint space narrowing results from the loss of articular cartilage.
- iii. Periarticular osteopenia : is due to the loss of calcium in bones surrounding the inflammatory arthritis and results from the effects of prostaglandins, IL-1, and TNF which are released by the inflamed synovium.
- iv. Marginal erosions are produced by the proliferative synovitis.

Rheumatology MCQ

1- Rheumatoid factor in SLE is positive in :

- a. 20 %
- b. 35 %
- c. 50 %
- d. 70 %

2- Which is the specific antibody for SLE

- a. Anti Ro/La
- b. Anti-RNP
- c. Anti-ss DNA
- d. Anti-Sm

3- Extra-articular manifestations of rheumatoid arthritis include EXCEPT

- a. Cutaneous ulceration
- b. Pericardial & pleural effusion
- c. Amyloidosis
- d. Anterior uveitis

4- ANA in SLE is positive in approximately

- a. 60 %
- b. 75 %
- c. 80 %
- d. 95 %

5- Which is NOT used to treat acute gouty arthritis

- a. Etoricoxib
- b. Allopurinol
- c. Colchicine
- d. Prednisolone

6- Which is NOT regarded as a small vessel vasculitis

- a. Microscopic polyangiitis
- b. Henoch-Schonlein purpura
- c. Polyarteritis nodosa
- d. Essential mixed cryoglobulinemia.

7- Which of the following usually presents as monoarthropathy

- a. SLE
- b. Rheumatoid arthritis
- c. Gout
- d. Sjogren's syndrome

8- Metacarpophalangeal joints are usually NOT affected in

- a. Osteoarthritis
- b. Rheumatoid arthritis
- c. Ankylosing spondylitis
- d. Reactive arthritis

9- Brucella arthritis commonly affects

- a. Knee joint
- b. Joints of hands
- c. Spine
- d. Metatarsophalangeal joint

10- CREST syndrome is aggregation of Calcinosis , Raynaud's , Sclerodactyly , Telangiectasia and

- a. Edema
- b. Esophageal hypomotility
- c. Endomyocardial fibrosis
- d. Exophthalmos

11- Felty's syndrome doesn't include :

- a. Rheumatoid arthritis.
- b. Splenomegally.
- c. Hepatomegally.
- d. Pancytopenia.

12- CREST syndrome is diagnosed by presence of

- a. Anti-RNP antibody
- b. Anti-centromere antibody
- c. Anti-Jo-1 antibody
- d. Anti-histone antibody

13- Which is false as regard to ARA criteria of rheumatoid arthritis

- a. Rheumatoid nodules
- b. Morning stiffness > 1 hour
- c. Asymmetrical arthritis
- d. Arthritis of hand joints

14- In rheumatoid arthritis , rheumatoid factor is formed against

- a. IgG
- b. IgM
- c. IgA
- d. IgD

15- Commonest metabolic bone disease is

- a. Osteoarthritis
- b. Rickets
- c. Osteoporosis
- d. Osteomalacia

16- Recurrent anterior uveitis is most characteristic of

- a. Behcet's syndrome
- b. SLE
- c. Rheumatoid arthritis
- d. Sjogren's syndrome

17 - Hydroxychloroquine toxicity does not produce

- a. Maculopathy
- b. Corneal deposits
- c. Optic atrophy
- d. Cataract

18- Rheumatoid arthritis is strongly associated with HLA

- a. DR3
- b. DR4
- c. B27
- d. B8

19 - A 22 years woman has repeated attacks of myalgia , arthralgia , pericarditis and pleural effusion for few years. The laboratory screening test should be

- a. Rose Waaler agglutination test
- b. ANA
- c. ASO titre
- d. CD4 lymphocyte count.

20 - Esophagus is most commonly involved by

- a. Progressive systemic sclerosis
- b. Polymyositis
- c. Polyarteritis nodosa
- d. Behcet's syndrome

21- The dose of methotrexate in treatment of rheumatoid arthritis :

- a. 200 – 400 mg/day
- b. 200 – 400 mg/week
- c. 7.5 mg/day
- d. 7.5 mg/week

22- HLA B27 tissue typing is NOT associated with

- a. Psoriatic arthropathy
- b. Ankylosing spondylitis
- c. Reiter's syndrome
- d. Behcet's syndrome

23- The most common rheumatological disease is :

- a. Osteoarthritis
- b. Rheumatoid arthritis.
- c. Gout
- d. SLE

24- Drug induced SLE is NOT commonly associated with

- a. Polyarthrititis
- b. Pulmonary infiltrates
- c. Renal involvement
- d. Polyserositis

25- Bouchard's node in osteoarthritis is seen in

- a. Carpo-metacarpal joint
- b. Metacarpo-phalangeal joint
- c. Proximal interphalangeal joint
- d. Distal interphalangeal joint

26- Rheumatoid nodules are characterized by all EXCEPT

- a. Big
- b. Tender
- c. Fixed to skin
- d. Ulcerate

27- Ocular manifestations of rheumatoid arthritis usually do not include

- a. Anterior uveitis
- b. Episcleritis
- c. Scleromalacia
- d. Keratoconjunctivitis sicca

28- Drug of choice for relieving pain in osteoarthritis is

- a. Cortisone
- b. Ibuprofen
- c. Paracetamol
- d. Diclofenac

29- Pseudogout is associated with deposition of crystals of

- a. Calcium oxalate
- b. Calcium phosphate
- c. Calcium pyrophosphate dehydrate
- d. Monosodium urate

30- All of the following indicate poor prognosis in rheumatoid arthritis EXCEPT

- a. High titre of rheumatoid factor
- b. Extra-articular manifestations
- c. Acute onset of disease
- d. Early development of nodules

31- In Churg-Struss syndrome , the principle organ involved is

- a. Lung
- b. Kidney
- c. Central nervous system
- d. Liver

32- Kawasaki disease is associated with

- a. Coronary artery aneurysm
- b. Renal failure
- c. Pleural effusion
- d. Polyarteritis nodosa

33- Which organ is NOT included in classic Wegner's granulomatosis

- a. Lung
- b. Kidney
- c. Heart
- d. Nose

34- c-ANCA is diagnostic of

- a. Polyarteritis nodosa
- b. Microscopic polyarteritis
- c. Wegner's granulomatosis
- d. Crescentic GN

35- HBsAg is present in vasculitis associated with

- a. Henoch-Schonlein purpura
- b. Temporal arteritis
- c. Churg-Struss syndrome
- d. Polyarteritis nodosa

36- Colchicine may be used in all EXCEPT

- a. Scleroderma
- b. Chronic gout
- c. Myelofibrosis
- d. Primary biliary cirrhosis

37- Which of the following is NOT considered as a diagnostic criteria of SLE

- a. Painless oral ulcers
- b. Photosensitivity
- c. Alopecia
- d. Positive ANA

38- Boutonniere deformity is

- a. Extended distal & flexed proximal interphalangeal joints
- b. Flexed distal & extended proximal interphalangeal joints
- c. Flexed distal & proximal interphalangeal joints
- d. Extended distal & proximal interphalangeal joint

39- A 64 years old man presents with a vasculitic skin rash , a peripheral neuropathy and gastrointestinal blood loss. He is found to have proteinuria on dipstick urinalysis. Which one of the following is the most likely diagnosis ?

- a. Microscopic polyangiitis.
- b. Wegener's granulomatosis.
- c. Henoch-Schonlein vasculitis.
- d. Polyarteritis nodosa.

40- Which one of the following would be characteristic of the laboratory findings in a patient with antiphospholipid syndrome?

- a. Low C3 and C4 concentrations.
- b. Positive anticardiolipin antibodies.
- c. Prolonged INR.
- d. Elevated LDL.

41- Which of the following is often associated with low uric acid levels ?

- a. Thiazide diuretic therapy.
- b. Alcoholism.
- c. Polycythemia rubra vera.
- d. Eclampsia of pregnancy.

42 - A 58 year old women who has had Sjogran's syndrome for ten years presents with enlarged cervical lymph nodes. Which one of the following is the most likely neoplasm responsible for this presentation?

- a. Gastric carcinoma.
- b. Lymphoma.
- c. Bronchial carcinoma.
- d. Chronic lymphatic leukemia.

43- Presentation with acute monoarthritis suggests the possibility of EXCEPT

- a. Crystal arthritis.
- b. Trauma.
- c. Bacterial infection.
- d. Rheumatoid arthritis.

44- One of the following suggests a mechanical rather than inflammatory cause of back pain :

- a. Back pain and stiffness exacerbated by resting.
- b. +ve rheumatoid factor.
- c. Gradual mode of onset in an elderly patient.
- d. Radiation of pain down the back of one leg to the ankle.

45- The typical features of rheumatoid arthritis include :

- a. Onset usually before the age of 30 years.
- b. Male to female ratio of 3 : 1
- c. Sparing of joints of the pelvic and shoulder girdle.
- d. Association with HLA-DR4

46- Typical features of active rheumatoid arthritis include :

- a. Fever and weight loss.
- b. Macrocytic anemia.
- c. Anterior uveitis.
- d. Thrombocytopenia.

47- The following statements about rheumatoid arthritis are true EXCEPT :

- a. joint pain and stiffness is typically aggravated by rest.
- b. the rheumatoid factor test is positive in about 70% of patients.
- c. joint involvement is additive rather than flitting.
- d. associated scleromalacia typically produce painful red eyes.

48- Diseases associated with seronegative spondylopathy include EXCEPT :

- a. Still disease.
- b. Whipple's disease.
- c. Sjogran's disease.
- d. Behcet's disease.

49 - Overdoses of salicylates lead to all of the following EXCEPT :

- a. Nausea and vomiting.
- b. Tinnitus.
- c. Marked hyperventilation.
- d. Increase in blood PH.

50 - Highest incidence of rheumatoid factor is found in

- a. SLE
- b. Rheumatoid arthritis
- c. Sjogren's syndrome
- d. Progressive systemic sclerosis.

Answers

- | | |
|-------|-------|
| 1- a | 26- b |
| 2- d | 27- a |
| 3- d | 28- c |
| 4- d | 29- c |
| 5- b | 30- c |
| 6- c | 31- a |
| 7- c | 32- a |
| 8- a | 33- c |
| 9- c | 34- c |
| 10- b | 35- d |
| 11- c | 36- b |
| 12- b | 37- c |
| 13- c | 38- a |
| 14- a | 39- d |
| 15- c | 40- b |
| 16- a | 41- d |
| 17- d | 42- b |
| 18- b | 43- d |
| 19- b | 44- d |
| 20- a | 45- d |
| 21- d | 46- a |
| 22- d | 47- d |
| 23- a | 48- c |
| 24- c | 49- d |
| 25- c | 50- c |

Endocrinology exam

I. MCQ

1- Secondary DM is associated with all EXCEPT

- a) Thiazide diuretic therapy
- b) Hemochromatosis
- c) Secondary hyperaldosteronism**
- d) Acromegaly

2- A 40 year old man presents with cold intolerance and weight gain. Examination reveals goiter. The most likely finding on CNS is :

- a) Ataxia
- b) Delayed relaxation of ankle jerk**
- c) Hyper reflexia
- d) Loss of sensation

3-A 15 year old boy who is diabetic presents with abdominal pain, vomiting and shortness of breath. There is history of fever and sore throat 2 days back. The most likely cause of his symptoms is :

- a) DKA**
- b) Hypoglycemia
- c) Renal failure
- d) Non ketotic hyperosmolar coma

4- A 58 year old woman is noted to have grave's disease and has a small goiter. Which of the following is the best therapy?

- a) Long term propranolol
- b) Lifelong oral propylthiouracil
- c) Radioactive iodine ablation**
- d) Surgical thyroidectomy

5- A 28 year-old woman with diabetes presents with lesions on her leg. They are not painful, and have a central depression and raised irregular margine. Which of the following is the most likely diagnosis?

- a) Gangrene
- b) Necrobiosis lipoidica dibeticorum**
- c) Staphylococcal infection
- d) Erythema nodosum

6- Which of the following is the most likely effect of acromegaly on the muscle?

- a) Enlargement**
- b) Spasm
- c) Increased strength
- d) Myositis

7- Which of the following is the most common manifestation of multiple endocrine neoplasia, type 1 (MEN 1)?

- a) An adrenal adenoma.
- b) Primary hyperparathyroidism.**
- c) Acromegaly.
- d) Islet cell tumor of the pancreas.

8- Causes of DI include EXCEPT

- a) Craniopharyngioma
- b) Hypocalcemia**
- c) DIDMOAD syndrome
- d) Sarcoidosis.

9- Typical results of investigations in a patient with Acromegaly include

- a) Failure of the plasma GH to rise during a glucose tolerance test
- b) Decreased serum prolactin.
- c) Increased IGF-1**
- d) Tumor shrinkage in response to octreotide therapy.

10- Commonest cause of Addison's disease is

- a) Granuloma
- b) Idiopathic atrophy**
- c) Inflammatory necrosis.
- d) Malignancy

11- A 32 year old woman presents with heat intolerance, palpitation, diarrhea, weakness, and weight loss. Her blood pressure is 90/60 mmHg, pulse 110/min, and she has a fine tremor in her hands. The TSH is suppressed and T3 & T4 are elevated. Which of the following is most likely to precipitate this condition?

- a) Propylthiouracil administration
- b) High dose prednisone therapy
- c) Pneumonia**
- d) B blocker administration

12- Which cranial nerve is not involved in acromegaly

- a) VIII
- b) III, IV, VI
- c) V**
- d) II

13 – Causes of primary adrenal insufficiency include all of the following EXCEPT

- a) Hemochromatosis
- b) Sarcoidosis**
- c) Tuberculosis
- d) Amyloidosis

14- Which is not a part of multiple endocrine neoplasia type 1

- a) Pheochromocytoma**
- b) Tumor of pituitary
- c) Tumor of pancreas
- d) Hyperparathyroidism

15 - Osmoreceptors are present in

- a) Atria
- b) Kidney
- c) Anterior hypothalamus**
- d) Adrenal cortex

16- Causes of nephrogenic DI include EXCEPT

- a) Lithium
- b) Heavy metal poisoning
- c) Chlorpropamide.**
- d) Demeclocycline.

II. Enumerate :

1- Causes of nephrogenic DI.

- a)
- b)
- c)
- d)
- e)

2- As regard to the risk factors of carpal tunnel syndrome, what does the mnemonic "DR Ahmed Mowafy" stand for ?

D :

R :

A :

M :

3- Five endocrinal manifestations of acromegaly :

- | | | |
|----------|----------|----------|
| a) | c) | e) |
| b) | d) | |

4- Initial lab test to diagnose a case of acromegaly is confirmed by

5- Raised prolactin level in a case of acromegaly is explained by

- a)
- b)

6- Mention 4 drugs that can increase serum prolactin :

- a) **Antipsychotics** : Phenothiazine (chlorpromazine), Haloperidol.
 - b) **Antidepressant** :
 - o Tricyclic Antidepressants : Amitriptyline.
 - o Selective Serotonin Reuptake Inhibitors (SSRI) : Paroxetine.
 - c) **Antiemetic** : Metoclopramide, Domperidone.
 - d) **Antihypertensive** :, α -Methyl-dopa, reserpine, verapamil.
- Others : Morphine, Estrogen, Cimetidine.

7- Low morning serum cortisol < is highly suggestive of adrenal insufficiency. The diagnosis of AI is excluded if morning cortisol >

8- Mention 3 life threatening infections in diabetics.

- a)
- b)
- c)

9- Causes of hypoglycemia in adult : mnemonic EXPLAIN

- a) **Exogenous drugs** : insulin, oral hypoglycemic, alcohol.
- b) **Pituitary insufficiency**.....
- c) **Liver failure**....
- d) **Addison's disease**....
- e) **Islet cell tumor (insulinoma)**, Immune hypoglycemia (anti insulin receptor antibodies in Hodgkin's disease)
- f) **Non pancreatic neoplasm esp retroperitoneal fibrosarcoma**.

10- Advantages & disadvantages of incretins :

- o Advantages : a) b) c)
- o Disadvantages : a) b)

11 – Lab criteria of good diabetic control :

- a) **HA1c** :
- b) **Fasting plasma glucose** :
- c) **Postprandial plasma glucose** :

Nephrology exam

I. MCQ

1- Total body depletion of sodium occurs in EXCEPT :

- a) Addison's Disease
- b) Nephrotic syndrome**
- c) Diabetic ketoacidosis
- d) Chronic lasix use.

2- Which is not typical association in adult polycystic kidney disease

- a) Polycythemia
- b) VSD**
- c) Nephrolithiasis
- d) Berry aneurysms

3- Which metal is not responsible for development of nephritic syndrome

- a) Gold
- b) Iron**
- c) Mercury
- d) Lead

4- Which is false regarding Berger's disease

- a) Recurrent hematuria
- b) ↑ serum IgA
- c) It may represent a form of Henoch Schonlein purpura
- d) ↓ Complement level**

5- Complement C3 is characteristically low in all except

- a) Membranoproliferative GN
- b) SLE
- c) Focal glomerulosclerosis**
- d) Post streptococcal GN

6- Absolute indication for dialysis

- a) Serum K level > 6 mEq/L
- b) Serum urea level > 200 mg/dL
- c) Serum creatinine > 4 mg/dL
- d) Clinical evidence of pericarditis**

7- Colony count in a symptomatic UTI is more than

- a) $10^3/\text{mL}$
- b) $10^4/\text{mL}$
- c) $10^5/\text{mL}$**
- d) $10^2/\text{mL}$

8- All are true in ARF except

- a) Increased urea
- b) Increased H⁺
- c) Increased Ca**
- d) Increased K

9- Proteinuria in excess of 3 g/day is typical feature of :

- e) Heart failure
- f) Polycystic renal disease
- g) Renal vein thrombosis**
- h) Chronic pyelonephritis.

10- A 21 year old male with type 1 DM, 4 years ago comes for follow up. He has noted that his urine is foamy but otherwise has no complaint. Eye examination shows no retinopathy. Urine analysis shows 4+ proteinuria. The most likely cause of proteinuria in this patient is : *

- e) Diabetic nephropathy
- f) Membranous GN**
- g) Minimal change disease
- h) Post streptococcal GN

11- Hemoptysis is found in all of the following EXCEPT

- a) Goodpasture's syndrome
- b) COPD**
- c) Bronchogenic carcinoma
- d) Bronchiectasis

12- Which of the following electron microscopy findings on the renal biopsy is most likely with poststreptococcal GN ?

- a) Diffuse mesangial deposits
- b) No deposits
- c) Closed capillary lumen
- d) Subepithelial humps**

II. Enumerate :

1- Endocrinal manifestations of chronic renal failure :

- a)
- b)
- c)
- d)
- e)

2- Mention 3 causes of focal segmental glomerulosclerosis :

- a)
- b)
- c)

Hepatology exam

I. MCQ

1- What do you recommend for a surgeon punctured by a needle during cholecystectomy for a patient with hepatitis C

- a) Reassurance.
- b) Active immunization
- c) Passive immunization
- d) Interferon therapy
- e) Follow up of liver enzymes.**

2- SAAG is > 1.1 g/dl in all except

- a) Tuberculous peritonitis**
- b) Congestive heart failure
- c) Liver cirrhosis
- d) Budd-Chiari syndrome

3- As regard to primary biliary cirrhosis, which of the following is most curative?

- a) Ursodiol (ursodeoxycholic acid)
- b) Methotrexate.
- c) Azathioprine.
- d) Liver transplantation.**

4- Which of the following is the most likely mechanism of paracetamol hepatotoxicity?

- a) An allergic mechanism.
- b) An active metabolite**
- c) Circulating immune mechanism
- d) A reaction with hepatic glycogen stores.

5- Which of the following laboratory tests is most characteristic of a patient with jaundice secondary to alcoholic hepatitis ?

- a) Ratio of AST:ALT is 3:1 and the AST is 500 U/L
- b) Ratio of AST:ALT is 2:1 and the AST is 250 U/L**
- c) Ratio of AST:ALT is 1:1 and the AST is 250 U/L
- d) Ratio of AST:ALT is 1:3 and the AST is 750 U/L

6- All of the following cancers commonly metastasize to the liver EXCEPT

- a) Breast
- b) Colon
- c) Prostate**
- d) Lung

7- Complications of portal hypertension include all of the following EXCEPT

- a) Budd Chiari syndrome**
- b) Ascites
- c) Hepatorenal failure
- d) Hepatic encephalopathy

8- Which is not true as definition of liver cirrhosis :

- a) Fatty infiltration**
- b) Necrosis
- c) Fibrosis
- d) Regeneration

9- Minimal fluid required to have classical shifting dullness in ascites is

- i) 100 – 250 ml
- j) 250 – 500 ml
- k) 500 – 1000 ml**
- l) More than 1 litre

10- Minimal free fluid in the abdomen required to be diagnosed by US :

- i) 15 ml
- j) 30 ml**
- k) 75 ml
- l) 100 ml

11- A patient with sclera icterus and a positive reaction for bilirubin by urine dipstick testing could have which of the following disorders?

- a) Autoimmune hemolytic anemia.
- b) Dubin Johnson syndrome.**
- c) Crigler-Najjar type II disorder.
- d) Gilbert's syndrome.

12- The following are risk factors for hepatocellular carcinoma except

- a) Hepatic hemangioma.**
- b) Chronic hepatitis C
- c) Hemochromatosis
- d) Aflatoxin

II. Enumerate :

1- Indications & contraindications of interferon in chronic hep C :

Indications : 3

a)

b)

c)

Contraindications : 8

a).....

b)

c)

d)

e)

f)

g)

h).....

2- Extra-hepatic complications of acute hepatitis : Skin, Blood, Endocrine

- Skin : ,
- Blood : ,
- Endocrine : ,

3- Diagnosis of hepatitis C.

a)

b)

c)

d)

e)

f)

CASES

A 67-year-old woman is seen for complaints of mild memory loss and fatigue. On evaluation, she is found to have an anemia, which is characterized by the following laboratory values: white blood cell count, $5,200/\text{mm}^3$; hemoglobin, 9.1 g/dL; hematocrit, 26.9%; MCV, 101 fL; reticulocytes, less than 1%; and platelets, $154,000/\text{mm}^3$. Her serum cobalamin level is 260 pg/mL and her folate, thyroid-stimulating hormone, and liver function tests are normal.

- How would you further evaluate this patient's anemia?
- On the basis of the laboratory results so far, what test, or tests, might be helpful in diagnosing the cause of this patient's anemia?
- Why might such a patient be deficient in cobalamin?

- **How would you further evaluate this patient's anemia ?**

Serum cobalamin and folate levels should be determined. In addition, a search for both alcohol abuse and liver disease should be undertaken and hypothyroidism ruled out. If none of these is found to be a likely cause, other reasons for the anemia (refractory or aplastic anemia) should be explored. A peripheral blood smear should be examined for possible clues such as hypersegmented polymorphonuclear leukocytes (seen in cobalamin deficiency) or target cells (seen in liver disease).

- **On the basis of the laboratory results so far, what test, or tests, might be helpful in diagnosing the cause of this patient's anemia?**

This patient likely has cobalamin deficiency, although her serum cobalamin level of 260 pg/mL is within the normal range. Because studies have shown that such deficiency results in methylmalonic aciduria and homocystinemia, these metabolic substrates should be measured in this patient. Other testing that might be considered includes a Schilling test or measurement of anti-intrinsic factor antibodies.

- **Why might such a patient be deficient in cobalamin?**

There are various causes of cobalamin deficiency. It can stem from the ingestion of insufficient animal protein, as seen in true vegetarians. Failure to release cobalamin from food binders or failure to secrete intrinsic factor results in pernicious anemia. Failure to absorb the intrinsic factor-cobalamin complex in the distal ileum, as occurs in patients who have undergone an ileal resection can also lead to cobalamin deficiency.

A 35-year-old woman presents to the emergency room complaining of a nosebleed that has persisted for several hours. She denies a history of previous bleeding, although she has noticed some increased bruising during the last week and the appearance of a small, purplish rash on her feet and ankles. She denies any excessive bleeding with the delivery of her three children and has not undergone any surgical procedures. She denies taking aspirin, although she has taken acetaminophen for relief of a mild backache, and is on no other medications. On review of her symptoms, she denies arthralgias, arthritis, fevers, cold symptoms, or other infectious symptoms; she has been in good health until now. On examination, she is found to be well developed and in no distress. There is some fresh as well as dried blood obscuring the nasal mucosa; she has no conjunctival hemorrhages but does have palatal petechiae. Her spleen is not palpable but there is a petechial rash around both ankles. Her nosebleed requires nasal packing for control.

The following initial laboratory values are found: white blood cell count, $6,700/\text{mm}^3$ with a normal differential; hemoglobin, 14.2 g/dL; hematocrit, 42.2%; MCV, 85 fl; platelets, $50,000/\text{mm}^3$; PT, 11.5 seconds and PTT, 28 seconds.

- What would you do next to evaluate this patient's bleeding?
- What results would you expect from the further evaluation of this patient's bleeding?
- What therapy would you institute in this patient?

- **What would you do next to evaluate this patient's bleeding?**

Her clinical picture is consistent with that of **ITP**: normal coagulation findings and complete blood count, except for the platelet count, and the absence of other physical findings such as an enlarged spleen.

bone marrow biopsy would show an increased or normal number of megakaryocytes. Some clinicians may choose to treat for presumptive ITP and evaluate the patient in 24 hours.

- **What therapy would you institute in this patient?**

Platelet transfusions would not be helpful in this patient and might even accelerate the destructive process. Prednisone treatment (60 to 100 mg per day) should be initiated once bone marrow findings confirm the diagnosis or if the patient is treated empirically.

A 37-year-old man is seen because of lack of energy, night sweats, and poor appetite with a sensation of fullness after eating even very small amounts of food.

Physical examination reveals signs of anemia, splenomegaly, and the existence of petechiae. A complete blood count is performed and yields the following findings: hematocrit, 25%; platelets, $300,000/\text{mm}^3$, and white blood cells, $72,000/\text{mm}^3$. A bone marrow biopsy is performed and the specimen is found to exhibit a granulocytic - erythroid ratio of 10:1 with 100% cellularity and 1% blastocytes.

- What is the differential diagnosis in this patient, based on the physical examination findings?
 - On the basis of the hematologic findings, what hematopoietic abnormalities would you expect in this patient with suspected CML?
 - What do the bone marrow findings indicate in this patient?
 - What would be the most specific test for establishing the diagnosis of CML in this patient?
 - If the patient is started on single-agent chemotherapy, what would be the likely effect?
-
- **What is the differential diagnosis in this patient, based on the physical examination findings?**
 - When the diagnosis of CML is considered, other possibilities, such as a solid cancer, lymphomas, and chronic infections must be excluded. These other diseases may cause a leukemoid reaction by increased stimulation of normal myelopoiesis. Usually a leukemoid reaction results in a white blood cell count of less than $100,000/\text{mm}^3$, and less than 10% of cells are myelocytes or more immature forms.
 - **Splenomegaly** is almost the rule in patients with CML, and it is the source of poor appetite and upper abdominal pain, such as that seen in this patient. Because normal hematopoiesis is suppressed, the patient could exhibit the signs and symptoms of anemia, such as headache, palpitations, pallor, and cardiac failure.
 - Finally, petechiae, although possible, are not very frequent findings in patients with CML.
 - **On the basis of the hematologic findings, what hematopoietic abnormalities would you expect in this patient with suspected CML ?**

Normal hematopoiesis is suppressed by the leukemic activity in the bone marrow, leading to a decreased number of red blood cells, as well as decreased hemoglobin level and hematocrit. Typically, the anemia of CML is normochromic normocytic. Although immature, most of the white blood cells look morphologically normal, and mature neutrophils, band forms,

metamyelocytes, and myelocytes constitute most of the white blood cells in this patient. Another characteristic finding is an increased number of basophils. If most of the cells are blasts, this indicates acute leukemia in most cases, although it can also indicate that the patient is in the blastic phase of CML.

- **What do the bone marrow findings indicate in this patient ?**

The bone marrow findings are consistent with a diagnosis of CML, and bone marrow biopsy constitutes an important part of the diagnostic evaluation in patients with any kind of leukemia (acute and chronic). Normally, the granulocytic-erythroid ratio ranges from 2 to 4 : 1, but, in the setting of CML, cells of white lineage predominate and increments of any form of white blood cells, from myeloblasts to mature neutrophils, can be found. An increment in lymphocytes and red blood cell precursors is not characteristic of CML. The normal bone marrow cellularity is 50% fat and 50% or less cells, but, in the leukemias, the accelerated production of abnormal cells causes the fat to be replaced, and the cellularity increases to 100%. Finally, even in normal bone marrow, a very small number of blast cells can be found; in CML, a small percentage of blast cells can be found, but this does not necessarily signify acute leukemia. In blast crisis or acute leukemia, at least 20% of the cells in the bone marrow are blast cells.

- **What would be the most specific test for establishing the diagnosis of CML in this patient ?**

The most specific test for establishing the diagnosis of CML is a cytogenetic investigation for the Ph¹ chromosome, which is found in 90% of cases of CML.

- **If the patient is started on single-agent chemotherapy, what would be the likely effect ?**

The chemotherapeutic agent most commonly used in the treatment of CML is hydroxyurea. This therapy can improve the patient's quality of life by rapidly decreasing the number of white blood cells and platelets. It does not prolong survival very much, if at all, in patients with CML. The interferons can induce complete hematologic and cytogenetic remissions, with suppression of the Ph¹ chromosome in patients with CML. Most importantly tyrosine kinase inhibitors have high incidence of biologic responses and less toxicity. Allogeneic bone marrow transplantation has been the only curative treatment for CML but has a high rate of complications. Advanced age and the lack of suitable donors preclude its use in many patients, but it may be the therapy of choice in this 37-year-old man.

A 55-year-old man who is a smoker and has hypertension sees his internist because of malaise and nasal stuffiness with full sensation in his frontal sinuses. On further questioning, the patient also describes having itchy, red feet that worsen in the shower. The patient has no shortness of breath with activity and does not snore or experience daytime drowsiness.

Physical examination reveals a plethoric patient who is in no acute distress. His lungs are clear to auscultation. His liver span is 18 cm and his spleen tip is palpable.

The following laboratory values are reported: hematocrit, 65%; white blood cell count, $8,500/\text{mm}^3$; platelets, $210,000/\text{mm}^3$; and differential: 50% segmented neutrophils, 30% lymphocytes, 3% basophils, and 10% monocytes.

Arterial blood gas determinations performed on room air reveal a partial pressure of oxygen of 65 mm Hg, a partial pressure of carbon dioxide of 38 mm Hg, and an oxygen saturation of 93%.

- What is the diagnosis in this patient?
- Why is it important to know whether the patient snores or experiences daytime drowsiness?
- What is the cause of this patient's nasal stuffiness?
- What should be the initial treatment in this patient?
- What is this patient's prognosis?

- **What is the diagnosis in this patient ?**

This patient most likely has **polycythemia vera**. The oxygen saturation greater than 90% and the presence of splenomegaly support the diagnosis. The presence of mononuclear and basophilic cells also supports the diagnosis of a myeloproliferative disorder, which would be further supported by a bone marrow biopsy that shows trilinear hyperplasia.

- **Why is it important to know whether the patient snores or experiences daytime drowsiness ?**

Snoring and daytime drowsiness are symptoms of sleep apnea, a cause of secondary erythrocytosis. Although phlebotomy can cure the patient's erythrocytosis, it cannot treat the nighttime hypoxia or sleep apnea, and the patient could go on to have right-sided heart failure.

- **What is the cause of this patient's nasal stuffiness ?**

Although he may have a sinus infection, the nasal stuffiness is most likely due to increased blood viscosity.

- **What should be the initial treatment in this patient ?**

Phlebotomy should be performed as soon as possible to decrease the hematocrit to 45% to 50%. The increased blood viscosity places this patient who has two other risk factors for atherosclerotic disease, namely smoking and hypertension, at risk for a stroke or cardiovascular accident.

- **What is this patient's prognosis ?**

Even with careful treatment of his erythrocytosis with phlebotomy and chemotherapy, his life expectancy will probably be more limited because of his smoking and hypertension.

By Dr.Diaa Ahmed
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Hematology MCQ

1- A feature of idiopathic thrombocytopenic purpura common to both children and adults is

- a. Occurrence after an antecedent viral illness
- b. Absence of splenomegaly
- c. Persistence of thrombocytopenia for more than 6 months
- d. Necessity of splenectomy to ameliorate thrombocytopenia

2- Which one of the following is NOT a myeloproliferative disorder

- a. CML
- b. Polycythemia vera
- c. Essential thrombocythemia
- d. Myeloid metaplasia

3- Normocytic normochromic anaemia is an expected feature of

- a. beta-thalassaemia
- b. chronic renal failure
- c. iron deficiency anemia
- d. alcoholic liver disease
- e. myelodysplastic syndrome

4- All of the following are seen in intravascular hemolysis EXCEPT :

- a. High urinary urobilinogen
- b. Reticulocytosis
- c. High plasma hemopexin
- d. High urinary hemosiderin.

5- Auer rods are found in

- a. Acute myeloid leukemia
- b. Blast crises of chronic myeloid leukemia
- c. Acute lymphoblastic leukemia
- d. Blast crisis of chronic lymphoid leukemia

6- Which of the following does not produce iron overload in body

- a. Chronic hemodialysis
- b. Pernicious anemia
- c. Alcoholic liver disease
- d. Sideroblastic anemia

7- Anaphylactoid purpura may be associated with all EXCEPT

- a. Joint pain
- b. Proteinuria
- c. Abdominal pain
- d. Generalized lymphadenopathy
- e. Urticarial maculopapular rash especially over buttocks & extensor surface of legs

8- The following are common clinical manifestations of leukemia EXCEPT

- a. Fever
- b. Pallor
- c. Jaundice
- d. Lymphadenopathy
- e. Petechial hemorrhage

9- Which of the following anemias is associated with splenomegaly

- a. Chronic renal failure
- b. Aplastic anemia
- c. Hereditary spherocytosis
- d. Sickle cell anemia

10- In persons who have chronic myeloid leukemia, the translocation that accounts for the Philadelphia chromosome most commonly is found in

- a. all cells of the body
- b. all three hematopoietic cell lines but not in nonhematopoietic cells
- c. all cells of the granulocytic cell line but not in nongranulocytic cells
- d. all bone marrow stem cells but not in mature cells
- e. all bone marrow stem cells and certain mature granulocytes

11- All of the following produce microcytic anemia EXCEPT

- a. Sideroblastic anemia
- b. Thalassemia
- c. Pernicious anemia
- d. Lead poisoning

12- The following are bad prognostic signs of acute leukemia EXCEPT

- a. Leukocytosis > 50000/cmm
- b. Mediastinal lymphadenopathy
- c. Age < 2 & > 10 years
- d. CNS manifestations
- e. Hepatosplenomegaly

13- Mr Mamdouh is undergoing a hip replacement . During surgery he loses approximately 1 litre of blood and transfusion of 2 units of packed cells is commenced towards the end of the operation. The anaesthetist notices that his pulse has risen to 130/min and his blood pressure has fallen to 80/40 mmHg .He is noted to have frank hematuria. Which one of the following is the most likely cause of the sudden deterioration ?

- a. Major ABO incompatibility
- b. Myocardial infarction
- c. Sepsis
- d. Reaction to anaesthetic drug
- e. Undetected blood loss

14- In a patient with chronic renal failure on replacement erythropoietin injections, which one of the following is NOT a recognized side effect of this treatment

- a. Hypertension
- b. Increased risk of thrombosis
- c. Pure red cell aplasia
- d. Anorexia & vomiting
- e. Local pain at injection site

15- The most common type of anemia in Egypt is :

- a. Thalassemia
- b. Iron deficiency anemia
- c. Sickle cell anemia
- d. Aplastic anemia
- e. Megaloblastic anemia

16- The normal reticulocytic count is

- a. Less than 2%
- b. 2 - 6%
- c. 6 - 12%
- d. 12 - 18%
- e. 20 - 25%

17 - The mode of inheritance of thalassaemia is

- a. Autosomal dominant
- b. Autosomal recessive
- c. Sex linked recessive
- d. Sex linked dominant
- e. None of the above

18- The normal bone marrow aspiration , blast cells not exceed

- a. 1%
- b. 5%
- c. 10%
- d. 20%
- e. 28%

19 - Which of the following blood cells has the shortest blood half-life and is therefore most likely to become deficient as a result of chemotherapy treatment?

- a. Red blood cells
- b. Neutrophils
- c. Megakaryocytes
- d. Platelets

20 - Causes of huge spleen include all the following EXCEPT

- a. Bilharziasis
- b. Chronic malaria
- c. Chronic myeloid leukemia
- d. Hepatitis B

21- Therapy of haemophilia includes the following EXCEPT

- a. Fresh blood
- b. Fresh plasma
- c. Fresh platelets
- d. Factor VIII
- e. DDAVP (Desmopressin)

22- Chloroma is found in

- a. ALL
- b. AML
- c. CLL
- d. CML

23- Non thrombocytopenic purpura is seen in all EXCEPT

- a. Vasculitis
- b. SLE
- c. Chronic renal failure
- d. Hereditary hemorrhagic telangiectasis

24- A 35-year-old woman presents because of excessive bleeding after a dental extraction. She has a history of frequent prolonged menstrual periods, prolonged bleeding after the delivery of her only child 5 years ago, and easy bruisability. She also notes that her mother had a history of excessive bleeding as well. Physical exam at this time is unremarkable. The following studies are sent: WBC, 6500/cmm ; hematocrit, 39%; platelet count, 250,000/cmm ; PT, 12 sec ; PTT, 25 sec ; bleeding time, 15 min (normal, 5 to 10 min). The patient is taking no medicine and has taken no aspirin or nonsteroidal anti-inflammatory agents in the past month. Based on the available information, the most likely diagnosis is :

- a. hemophilia A
- b. hemophilia B
- c. factor XII deficiency
- d. von Willebrand's disease
- e. Bernard-Soulier disease

25- Gum bleeding is characteristic of all EXCEPT

- a. Chronic phenytoin therapy
- b. Aplastic anemia
- c. Scurvy
- d. Hemophilia

26- Splenectomy is virtually curative in

- a. G6PD deficiency
- b. Thalassemia
- c. ITP
- d. Hereditary spherocytosis

27- Henoch-Schonlein purpura is not associated with

- a. Thrombocytopenia
- b. Palpable purpura
- c. Acute diffuse GN
- d. Abdominal pain

28- Red cell osmotic fragility is increased in

- a. Thalassemia
- b. Hereditary spherocytosis
- c. Iron deficiency anemia
- d. ITP

29- Hemolytic anemia is not produced by

- a. Penicillin
- b. Lithium
- c. Methyl dopa
- d. Quinidine

30- Cooley's anemia is

- a. Sickle cell anemia
- b. Megaloblastic anemia
- c. Aplastic anemia
- d. Thalassemia major
- e. Iron deficiency anemia

31- Thrombocytopenia is absent in

- a. DIC
- b. Wiskott-Aldrich syndrome
- c. Henoch-Schonlein purpura
- d. Myelosclerosis

32- The outstanding feature of ITP is

- a. Fever
- b. Huge spleen
- c. Gum bleeding
- d. Sternal tenderness

33- Presence of anemia , jaundice & splenomegaly with increased MCHC is seen in

- a. Liver cirrhosis
- b. Thalassemia major
- c. PNH
- d. Hereditary spherocytosis

34- In polycythemia vera which is NOT true :

- a. Low level of erythropoietin
- b. High ESR
- c. High serum vitamin B₁₂ level
- d. Increased RBC mass
- e. Basophilia

35- Which isolated coagulation factor deficiency causes thrombosis

- a. Factor V
- b. Factor VII
- c. Factor XI
- d. Factor XII

36- Iron transport protein is

- a. Transcobalamin II
- b. Ferritin
- c. Haptoglobin
- d. Transferrin

37- Which of the following is false in haemophilia

- a. Normal PT
- b. Von Willebrand antigens level is grossly diminished
- c. Increased PTT
- d. Absent factor VIII coagulant activity

38- Eosinophilia is a feature of

- a. Non-Hodgkin's lymphoma
- b. Sickle cell anemia
- c. Hodgkin's lymphoma
- d. Hemophilia

39- ↑ serum iron and ↓ iron binding capacity is a feature of

- a. Chronic infection
- b. Sideroblastic anemia
- c. Alcohol liver disease
- d. Thalassemia major

40- Best prognostic indicator in multiple myeloma is

- a. Serum β_2 microglobulins
- b. Bence Jones protein in urine
- c. Number of plasma cells in marrow
- d. Serum Ca level

41- Treatment of choice in hairy cell leukemia is

- a. Chlorodeoxyadenosine
- b. Cortisone
- c. Splenectomy
- d. Hydroxyurea

42- Tumor lysis syndrome produces all EXCEPT

- a. Hyperuricemia
- b. Hyperkalemia
- c. Hypercalcemia
- d. Hyperphosphatemia

43- Platelet transfusion is NOT indicated in

- a. Aplastic anemia
- b. Uremia with bleeding
- c. DIC
- d. Immunogenic thrombocytopenia

44- Best treatment in chronic myeloid leukemia is

- a. Hydroxyurea
- b. Allogenic bone marrow transplantation
- c. Interferon
- d. Radiotherapy

45- Autoimmune haemolytic anemia is associated with

- a. ALL
- b. AML
- c. CLL
- d. CML

46- Which of the following is contraindicated in polycythemia vera

- a. Hydroxyurea
- b. Chlorambucil
- c. Interferon
- d. Baby aspirin to prevent thrombosis

47- HAM test (acid serum test) is positive in

- a. G6PD deficiency
- b. Myelodysplastic syndrome
- c. Paroxysmal nocturnal hemoglobinuria
- d. Hemolytic uremic syndrome

48- Erythropoietin is secreted from all the following tumors EXCEPT

- a. Renal cell carcinoma
- b. Pheochromocytoma
- c. Cerebellar hemangioblastoma
- d. Oat cell carcinoma of the lung

49- Most sensitive & specific test for diagnosis of iron deficiency anemia is

- a. Serum ferritin level
- b. Percentage of transferrin saturation
- c. Serum iron level
- d. Serum transferrin receptor population

50- Half life of platelet is

- a. 1 - 2 days
- b. 3 - 4 days
- c. 5 - 6 days
- d. 7 - 8 days

51- Feature of sickle cell anemia do not include

- a. Nocturia
- b. Priapism
- c. Hypersplenism
- d. Leg ulcers

52- Pancytopenia may develop from all EXCEPT

- a. Hemosiderosis
- b. Paroxysmal nocturnal hemoglobinuria
- c. Acute myeloblastic leukemia
- d. Systemic lupus erythematosus

53- Which of the following is associated with prolonged bleeding time

- a. Polycythemia vera
- b. Von Willebrand's disease
- c. Anaphylactoid purpura
- d. Hemophilia

54- Peripheral blood picture is the most useful diagnostic aid in

- a. Non Hodgkin's lymphoma
- b. Multiple myeloma
- c. Myelodysplastic syndrome
- d. Chronic myeloid leukemia

55- Serum alkaline phosphatase level in multiple myeloma is usually

- a. Low
- b. Normal
- c. High
- d. Fluctuates

56- Coagulation factor deficient in stored blood is

- a. VII
- b. V
- c. IX
- d. II

57- Half life of albumin is

- a. 1 - 2 days
- b. 10 - 14 days
- c. 16 - 20 days
- d. 20 - 26 days

58- Life span of platelets is

- a. 2 - 4 days
- b. 5 - 7 days
- c. 9 - 11 days
- d. 13 - 15 days

59- Megakaryocytosis in bone marrow is seen in all EXCEPT

- a. Myeloid metaplasia
- b. Polycythemia vera
- c. Chronic myeloid leukemia
- d. ITP

60- Parahemophilia is deficiency of factor

- a. IX
- b. V
- c. XI
- d. VIII

61- A 55-year-old man with type 1 diabetes undergoes dialysis three times a week for end-stage renal disease. You recently started him on erythropoietin injections for chronic anemia (hematocrit, 25%).

Which of the following is the best test to determine whether this patient will respond to the erythropoietin treatment?

- a. Erythropoietin level
- b. Hematocrit
- c. Creatinine level
- d. Reticulocyte count
- e. Blood urea nitrogen

62- A 34-year-old woman undergoes chemotherapy for advanced-stage breast cancer. As expected, she develops pancytopenia. Which cell line would you expect to be the last to recover in this patient?

- a. Eosinophils
- b. Platelets
- c. Basophils
- d. Monocytes
- e. RBCs

63- A 60-year-old man presents with complaints of headache, light-headedness, blurry vision, and fatigue; these symptoms have been increasing over the past month. He reports that he has felt weak and has not had much energy. He also reports generalized itching, which usually occurs after he takes a hot shower. Physical examination reveals facial plethora. His spleen is palpable 2 cm below the left costophrenic angle. Laboratory results reveal the following: Hb, 18; Hct, 61; platelets, 500,000; leukocytes, 17,000. Which of the following is the most appropriate diagnosis for this patient?

- a. Gaisböck syndrome (relative polycythemia)
- b. Pickwickian syndrome
- c. Polycythemia vera
- d. Acute myeloid leukemia
- e. Chronic myeloid leukemia

64- A 59-year-old woman with severe, progressive rheumatoid arthritis is found to have a neutrophil count of 1,200/mm³ on routine hematologic testing. She takes methotrexate and prednisone for her rheumatoid arthritis. In addition to rheumatoid nodules and rheumatoid joint deformities, moderate splenomegaly is noted on physical examination. Which of the following would not be contributing to this patient's neutropenia?

- a. Methotrexate
- b. Corticosteroids
- c. Antineutrophil antibodies
- d. Felty syndrome

By Dr.Diaa Ahmed
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more MCQ questions : www.incapsuleseries.com

Answers

By Dr.Diaa Ahmed
Zagazig University

1- b

2- c

3- b

4- c

5- a

6- b

7- d

8- c

9- c

10- b

11- c

12- e

13- a

14- d

15- b

16- a

17- b

18- b

19- b

20- d

21- c

22- b

23- b

24- d

25- a

26- d

27- a

28- b

29- b

30- d

31- c

32- c

33- d

34- b

35- d

36- d

37- b

38- c

39- b

40- a

41- a

42- c

43- d

44- b

45- c

46- b

47- c

48- d

49- a

50- b

51- c

52- a

53- b

54- d

55- b

56- b

57- d

58- c

59- c

60- b

61- d

62- b

63- c

64- b



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Pulmonology revision

Enumerate :

- 1. Causes of pleural effusion.**
- 2. Causes of pneumothorax.**
- 3. Causes of pneumonia.**
- 4. Causes of bronchiectasis.**
- 5. Causes of acute respiratory failure.**
- 6. Causes of chronic respiratory failure.**
- 7. Causes of interstitial lung diseases (ILD)**
- 8. Causes of hemoptysis.**
- 9. Causes of massive hemoptysis.**
- 10. Causes acute chest pain.**
- 11. Causes of clubbing due to chest diseases.**
- 12. Causes of central cyanosis.**
- 13. Causes of dry cough.**
- 14. Causes of hypoxia.**
- 15. Causes of acute respiratory distress syndrome.**
- 16. Causes of solitary pulmonary nodule.**
- 17. Causes of reticular shadows on plain X-ray chest.**
 - a) Acute pulmonary edema (cardiac, non cardiac)
 - b) Atypical pneumonia e.g. Mycoplasma.
 - c) ILD : Sarcoidosis, silicosis, asbestosis, idiopathic pulmonary fibrosis.
 - d) Neoplasia : lymphangitis carcinomatosis.
 - e) Wegener's, SLE.

18. Causes of nodular shadows on plain X-ray chest.

- a) Neoplasia : metastasis, lung cancer, adenoma.
- b) Infections : varicella pneumonia, septic emboli.
- c) Granulomas : miliary TB, Sarcoidosis, Wegener's .
- d) Pneumoconiosis (except asbestosis), Caplan's syndrome.

19. Causes of coin shadow.

- a) Bronchogenic carcinoma, solitary metastasis.
- b) TB, FB.
- c) Pneumonic stage of lung abscess.
- d) Granuloma.
- e) Encysted effusion.
- f) Calcified cyst.

20. Causes of mediastinal syndrome.

21. Causes of cor-pulmonale.

22. Causes of effusion with low sugar content.

23. Causes of hepatomegaly in respiratory diseases.

- a) Chronic venous congestion in cor-pulmonale e.g. COPD
- b) Metastatic liver in lung cancer.
- c) Ptosed liver in emphysema.

24. Extra-pulmonary manifestations of bronchogenic carcinoma.

25. Complications of pneumonia.

26. Complications of bronchiectasis.

27. Various types of pneumothorax.

28. Types of sputum.

29. Types of crepitations.

30. Causes of chronic cough with normal chest X-ray.

- Cough variant asthma or eosinophilic bronchitis.
- Smoking.
- ACEIs.
- GERD.
- Postnasal drip : due to allergic rhinitis or chronic sinusitis.

31. Causes of cough.

32. Non respiratory causes of cough.

- a) GERD.
- b) Drug induced : ACEIs.
- c) Central causes : brain tumor, cerebral strokes, encephalitis.
- d) Reflexes : due to irritation of vagal branches :
 - Meningeal branches : meningitis.
 - Auricular branches : otitis media.
 - Cardiac branches : arrhythmias.
 - Gastric branches : distension of gallbladder.

33. Causes of wheezy chest. P146 (generalized & localized)

34. Indications of bronchoscopy. P 148

35. Indications of lung transplantation. P148

GIVE A SHORT ACCOUNT ON :

1. **Diagnosis, treatment of pleural effusion.**
2. **Types of pleural effusion. P 15**
3. **Diagnosis of pneumonia.**
4. **Complications of pneumonia.**
5. **Treatment of pneumonia.**
6. **Non-resolving pneumonia.**
7. **Management of bronchiectasis.**
8. **Diagnosis of chronic lung abscess.**
9. **Diagnosis of bronchogenic carcinoma.**
10. **Etiology of COPD & define chronic bronchitis.**
11. **Clinical picture, investigations of COPD.**
12. **Treatment of COPD.**
13. **DD of COPD. P 51**
14. **Emphysema (Etiology, diagnosis, complications, treatment)**
15. **Acute severe asthma (status asthmaticus)**
16. **Diagnosis of bronchial asthma.**
17. **Treatment of bronchial asthma.**
18. **Diagnosis of acute & chronic respiratory failure.**
19. **Anti-tuberculous drugs.**
20. **C/P & investigations of TB.**
21. **Hemoptysis.**
22. **Diagnosis of acute chest pain of pulmonary origin.**

23. Mediastinal syndrome.

24. The dark side of oxygen. P 129

25. Occupational interstitial lung diseases (Pneumoconiosis)

26. C/P & investigations of sarcoidosis.

27. Surface anatomy of the pleura & lung. P 7, 8

28. Extra-pulmonary manifestations of bronchogenic carcinoma.

29. Extra-pulmonary manifestations of sarcoidosis.

30. Diagnosis of pneumothorax.

31. The value of eye examination of sputum sample.

a) Clear & colorless : chronic bronchitis.

b) Yellow/green : pulmonary infection.

c) Red : hemoptysis (.....)

d) grey : smoking, coal.

e) Pink frothy : pulmonary edema.

32. Drug induced lung disease. (written, oral, MCQ)

Respiratory condition	Drug
Bronchospasm	☒ B blockers. ☒ NSAIDs
Cough	☒ ACEIs
Respiratory center depression	☒ Sedatives, Opiates.
ARDS	☒ Prolonged inhalation of oxygen. ☒ Opiates, Cocaine, Heroin.
Pulmonary thromboembolism	☒ Estrogen
Pleural effusion	☒ Amiodarone ☒ Methotrexate ☒ Phenytoin ☒ INH ☒ Hydralazine
Interstitial pulmonary fibrosis	☒ Amiodarone. ☒ Methotrexate. ☒ Nitrofurantoin (antibiotic)

GIVE REASONS : (written & oral)

1. Congested neck vein in COPD.

- a) Increased intra-thoracic pressure.
- b) Hypoxic Cor-pulmonale.

2. Edema LL in COPD.

- a) Salt & water retention induced by hypoxia of the kidney.
- b) Hypoxic Cor-pulmonale.

3. Puffy eyelids in COPD.

- a) Straining caused by chronic cough.
- b) Hypoxic cor-pulmonale.
- c) Proteinuria.

4. Pulmonary hypertension in COPD.

- a) Hypoxia causes reflex pulmonary arteriolar VC.
- b) Hypoxia causes polycythemia → ↑ pulmonary resistance.
- c) Hypoxia causes peripheral VD → ↑ VR to RV
- d) Compression of the capillaries by the distended alveoli
(hyperinflation)
- e) Reduction of the number of capillaries due to destruction of
alveoli.
- f) Fibrosis of blood vessels.

5. RSHF in patients with COPD.

- a) Causes of pulmonary hypertension (see above)
- b) In severe cases, hypercapnia results in respiratory acidosis → myocarditis.

6. Chest pain in COPD.

- a) Muscular pain : due to chronic cough.
- b) Pleurisy complicated pneumonia.
- c) Pneumothorax : due to rupture emphysematous bullae.

7. Irreversible bronchial obstruction in chronic bronchitis.

- a) Mucous gland hypertrophy.
- b) Infiltration of the walls of bronchi with inflammatory cells
(neutrophils, CD8 + T lymphocytes).
- c) Inflammation is followed by scarring & remodeling process that thickens the walls of bronchi.

8. Palpable liver in COPD.

- a) Ptosed liver due to emphysema : not tender.
- b) Congested liver due to RSHF : tender.

9. Elevated hemoglobin with COPD.

Chronic hypoxia → ↑ of BM → secondary polycythemia.

10. Increased serum bicarbonate in COPD.

Retention of sodium bicarbonate by the kidneys as a compensatory mechanism to correct respiratory acidosis.

11. Silent chest in acute severe asthma.

- a) Exhausted respiratory muscles.
- b) Small amount of air passing through the bronchi.

12. Neurological manifestations in bronchial carcinoma.

- a) Brain metastasis : hemiplegia
- b) Mediastinal syndrome : caused by tumor or LN (....)
- c) Thoracic inlet syndrome in pancoast tumor : (....)
- d) Para-malignant syndrome : esp in small cell carcinoma (....)

13. Dyspnea in lung cancer

- Pneumonia.
- Underlying chronic lung disease e.g. COPD.
- Lobar collapse.
- Pleural effusion.
- SVCO.
- Upper airway obstruction.
- Pulmonary emboli.
- Lymphangitis carcinomatosa.
- Pericardial effusion.
- Anxiety and panic.

14. Unequal pupil in bronchial carcinoma.

Compression of subclavian artery : in mediastinal or thoracic inlet syndromes.

15. Chest pain in lung cancer.

- a. Invasion of the mediastinum, pleura and chest wall.
- b. Pancoast tumor : intractable neck, chest & arm pain due to compression and invasion of brachial plexus.
- c. Involvement of the esophagus : pain on swallowing.

16. Cushing's syndrome in bronchogenic carcinoma.

Endocrinal manifestation of para-malignant syndrome : secretion of ACTH by tumor cells esp in small cell carcinoma → ↑ ↑ zona fasciculata of cortex of supra-renal gland to secrete cortisol.

17. Carcinoid syndrome.

- The syndrome includes flushing and diarrhea, and, less frequently, heart failure and bronchoconstriction.
- The carcinoid syndrome occurs in approximately 10% of carcinoid tumors (neuroendocrine tumors, usually appear in the GIT e.g. appendix, small intestine, colon, rectum, and in the lungs)
- It is caused by endogenous secretion of mainly serotonin and kallikrein.
- In most patients, there is an increased urinary excretion of 5-HIAA (5-hydroxy indole acetic acid), a degradation product of serotonin.
- Treatment :
 - Surgical resection of tumor and chemotherapy (doxorubicin)
 - Octreotide (a somatostatin analogue that neutralizes serotonin and decreases urinary 5-HIAA)
 - Methysergide (antiserotonin agent but not used because of serious side effect of retroperitoneal fibrosis)

18. Cardiac abnormalities in carcinoid syndrome

- ➡ About 50% of patients have cardiac abnormalities, caused by serotonin-induced fibrosis of the tricuspid and pulmonary valves.
- ➡ Elevated levels of serotonin have been associated with cardiac failure, due to fibrous deposits on the endocardium.

19. Dyspnea after operation (Post operative pulmonary complications)

- ✓ Aspiration pneumonia.
- ✓ Aspiration lung abscess.
- ✓ ARDS.
- ✓ Pulmonary embolism.
- ✓ Postoperative collapse.
- ✓ Pneumothorax.

20. Rusty sputum

Present in lobar pneumonia due to color of hemoglobin of hemolysed RBCs in stage of red hepatization.

21. Chest pain in pneumonia.

- a) Pleurisy.
- b) Muscular pain due to repeated cough.

22. Non- resolved pneumonia. (Pneumonia lasting for > 2 weeks in spite of treatment)

- Inadequate treatment.
- Atypical organism.
- Immunocompromised patient.
- Underlying lung disease e.g. lung cancer.
- Pneumonia complicated by empyema or lung abscess.

23. Jaundice in TB.

a) Hepatocellular jaundice :

- Hepatotoxicity : Anti-TB drugs e.g. Rifampicin
- Extrapulmonary affection of the liver.

b) Obstructive jaundice : spread to LN in porta hepatis.

24. Jaundice in bronchogenic carcinoma.

a) Hepatocellular jaundice :

- Hepatotoxicity : side effects of chemotherapy.
- Extrapulmonary affection of the liver.

b) Obstructive jaundice : spread to LN in porta hepatis.

c) Hemolytic jaundice : para- malignant syndrome.

25. Jaundice in pneumonia

a) Hemolytic jaundice : hemolysis of RBCs present in consolidated area.

b) Hepatocellular : Impaired liver function by toxemia.

26. Abscess in right lower lobe of the lung

This is usually primary (inhalation) lung abscess. The inhaled material usually goes to the right lower lobe as the right lower bronchus is wide & in direct continuity with the trachea.

27. Edema LL in bronchiectasis.

a) Excessive sputum → loss of protein.

b) Cor-pulmonale.

c) Renal amyloidosis.

28. Hemorrhagic effusion. P 16

29. Exudative pleural effusion. P 11

30. Clubbing in respiratory diseases.

a) Pale clubbing (due to toxemia) :

- Suppurative lung diseases e.g. bronchiectasis.
- Bronchogenic carcinoma.
- TB.

b) Blue clubbing (due to hypoxia) :

- Interstitial lung diseases.
- Arterio-venous shunts.
- COPD (rare)

31. False -ve tuberculin test.

- Cortisone therapy or Immunocompromised patients.
- Improper technique.
- Pre immune phase (it takes 2–10 weeks after tuberculosis infection for an immune response to PPD to develop)
- fulminant tuberculosis especially military TB.

32. Anemia in TB

- Anemia of chronic disease.
- Toxic inhibition of BM (BM failure)
- Malnutrition.
- Chronic hemoptysis.

Cases

1- A 35-year-old patient complains of chronic cough & expectoration of excessive purulent sputum averaging 320 ml/d. The condition partly improves with antibiotics to recur again. Expectoration increases on awakening in the morning and on leaning forward. The patient also has 3rd degree clubbing.

- a) What is the most probable diagnosis ?
- b) Mention other conditions that can give a similar clinical picture ?
- c) What is the etiology and pathogenesis of the patient's illness ?
- d) How to treat such patient ?

a) What is the most probable diagnosis ?

Bronchiectasis.

b) Mention other conditions that can give a similar clinical picture ?

- 1) Lung abscess.
- 2) Infected cystic lung.
- 3) Empyema with bronchopleural fistula.

2- A patient presenting with dyspnea 3 days following an attack of fever 39°C with cough & expectoration. Physical examination revealed decreased movement on the right side of the chest with decreased fremitus, dullness to percussion, and decreased breath sounds all on the right. The trachea is deviated to the left.

a) What is the most likely diagnosis ? Right pleural effusion.

b) What are the causes of this condition ?

c) How to proceed in the management of this case ?

3- A 62 years old woman with congestive heart failure develops pneumonia and a large pleural effusion. Thoracocentesis is performed in an effort to establish whether the pleural effusion is due to heart failure or pneumonia. The aspirate showed a protein content of 6 g%, a glucose content of 30 mg% and an LDH content of 400 mg%.

a) Can u now answer the question whether the pleural effusion is due to CHF or pneumonia ? And how did u know ?

b) What other tests can be performed on the pleural aspirate to reach a specific diagnosis ?

c) What are the types of pleural effusion?

d) How to manage the case ?

a) Pleural aspirate should be analyzed to know whether it is a transudate or exudate (.....) : Pneumonia : exudate, CHF : transudate

4- A heavy smoker man 74 year old, presented with hemoptysis. On examination he was cachectic and had 2 hard LN 2 cm in size, in the right supraclavicular area. There was dullness in the upper right anterior part of the chest. He had a history of right upper limb pains and atrophy of the hypothenar muscles was noted.

- a) What is the diagnosis ?
- b) Enumerate causes of atrophy of the small muscles of the hand.
- c) Enumerate 5 hazards related to smoking.
- d) How would you treat him ?

5- A 45 year heavy smoker man presented to the outpatient clinic with an acute respiratory infection of few days duration. On examination his chest was over inflated and bilateral basal medium sized crepitations were detected.

- a) What is the probable diagnosis ?
- b) What are the investigations you would ask for ?
- c) How would you treat him ?

6- A 32-year old man suffers since adolescence from recurrent attacks of dyspnea and chest wheezing. He doesn't smoke. His symptoms are controlled with an inhaled drug.

- a) What do you expect his pulmonary function to show during an attack?
- b) What is the pathogenesis of this condition ?
- c) What is the medical treatment of this condition ?

a) What do you expect his pulmonary function to show during an attack?

- FVC is reduced.
- FEV1/FVC is reduced.
- Bronchodilator test : improvement of FEV1 > 15%
- Peak Expiratory Flow rate : is decreased.

7- A 63 year- old man with a 40 pack-year smoking history complains of progressive dyspnea, persistent cough and weight loss. He also has 3rd degree clubbing. Chest examination revealed decreased movement on the right side of the chest with decreased fremitus, dullness to percussion, and decreased breath sounds all on right. The trachea is also deviated to the right side. A right scalene LN 3 cm in diameter was readily palpable.

- a) What is the most probable diagnosis ? and why ?**
- b) How to investigate this case to reach specific diagnosis ?**

The patient's investigations showed in addition metabolic alkalosis, elevated serum cortisol and ACTH.

- c) What do you expect as a complication of this condition ?**
- d) What is the pathological type of this type of lesion in the lung ?**
- e) What other related complications that may be present in such a case ?**

a) What is the most probable diagnosis ? and why ?

- Bronchogenic carcinoma in the right lung presenting with right pleural effusion.
- The effusion is **malignant due to shift of the trachea to the same side** due to collapse of the underlying lung due to bronchial obstruction by the tumor.
- Other indications for presence of bronchogenic carcinoma are the old age, smoking history, weight loss, 3rd degree clubbing,& presence of scalene LN enlargement.

C) What do you expect as a complication of this condition ?

Cushing syndrome due to ectopic secretion of ACTH by the tumor.

d) What is the pathological type of this type of lesion in the lung ?

Small cell lung cancer.

8- A 27 year old female presented with fever , anorexia, dyspnea, dull aching chest pain on the right side, together with dry cough. She had been losing weight for the last 4 months. On examination there was pallor, low grade fever and a toxic face. The apex beat was in the 5th space outside the MCL. There was stony dullness in the right lower & middle lung zones, with decreased breath sounds in the same zones.

a)What is the most probable diagnosis ?

b) What are the 3 most important investigations you would request ?

c)Just outline the main lines of treatment ?

a) Right side pleural effusion probably due to TB

b)

1) Chest radiology : X ray & CT (most accurate, may identify as little as 10 mL of fluid)

2) Pleural aspiration : exudate (....) with the features of TB :

- Rich in lymphocytes & RBCs , Low glucose level.
- Bacteriological examination : ZN

3) pleural biopsy is diagnostic & show tuberculous granuloma in 2/3 of patients.

c)

1. General : Rest, good nutrition.

2. Anti TB drugs : (see book)

3. Chemotherapy alone is inadequate due to poor penetration of anti-TB drugs, so must be drained by ICT & surgical removal of a calcified empyema is necessary.

4. Cortisone : to reduce inflammation & fibrosis.

9- A 65 year-old male, heavy smoker since 40 years used to suffer from persistent cough during the last 7 years & was diagnosed as chronic bronchitis. Recently, he started to lose weight since few months & he noticed change in character of cough since few weeks, cough became more severe & prolonged. He had 3 attacks of hemoptysis.

On examination : Temp : 38°C, Clubbing & pallor.

- a) What is the most probable diagnosis ?**
- b) Mention the 2 most important investigations in this patient .**
- c) How can u explain clubbing, pallor & fever ?**

a) Bronchogenic carcinoma.

b)

1- Radiology (X-ray, CT)

2- Bronchoscopy & biopsy.

c)

- Clubbing : para-malignant syndrome (unexplained)
- Pallor : anemia (Anemia of chronic disease, para-malignant S)
- Fever : pneumonia, lung abscess, bronchiectasis, empyema, para-malignant S

MCQ

- 1- A low protein content is characteristic of pleural effusions associated with :
 - a) TB.
 - b) Cirrhosis.
 - c) Bronchogenic carcinoma.
 - d) Rheumatoid diseases.

- 2- Which of the following manifestations is typical of Kartagener's syndrome?
 - a. Intestinal obstruction
 - b. Dextrocardia
 - c. Steatorrhea
 - d. Infertility

- 3- Hypercapnia is a typical feature of :
 - a) Pulmonary embolism.
 - b) Salicylate intoxication.
 - c) Pulmonary fibrosis.
 - d) Severe chronic bronchitis

- 4- In pneumonia, the following features are classically associated with the specific organisms EXCEPT :
 - a) Erythema nodosum and Mycoplasma pneumonia.
 - b) Hyponatremia and Legionella pneumonia.
 - c) Abscess formation and Staphylococcus aureus.
 - d) Hemolytic anemia and Streptococcus pneumonia.

- 5- In lobar pneumonia which of the following is true in arterial blood :
 - a) Decreased Po₂, increased PCO₂
 - b) Decreased Po₂ , Decreased Pco₂.
 - c) Decreased Po₂ and normal Pco₂.
 - d) Normal Po₂, increased Pco₂.

- 6- Which is NOT a part of Kartagener syndrome :
 - a) Dextrocardia.
 - b) Sinusitis.
 - c) Impotence.
 - d) Bronchiectasis.

- 7- Which is correct in type 2 respiratory failure :
 - a) Decreased Po₂, increased PCO₂
 - b) Decreased Po₂ , Decreased Pco₂.
 - c) Decreased Po₂ and normal Pco₂.
 - d) Normal Po₂, increased Pco₂.

- 8- In pleural effusion, an impaired transport of glucose into the pleural space is found in :
- a) TB
 - b) Myxedema.
 - c) Liver cirrhosis.
 - d) Rheumatoid arthritis.
- 9- Bronchial breath sound is found in all EXCEPT
- a) Collapse with patent bronchus.
 - b) bronchial asthma.
 - c) superficial, big, cavity with patent bronchus.
 - d) bronchopleural fistula.
- 10- A 43 year old man consult you as he is producing a cupful of foul purulent sputum every day. Examination reveals digital clubbing and coarse crackles at the left base. What is the most likely diagnosis ?
- a) Bronchiectasis.
 - b) Acute lung abscess.
 - c) Bronchoalveolar cell carcinoma.
 - d) Sarcoidosis.
- 11- Clubbing is present in all EXCEPT :
- a) Fibrosing alveolitis.
 - b) Cystic fibrosis.
 - c) Emphysema.
 - d) Bronchiectasis.
- 12- Crepitations not influenced by coughing are found in :
- a) Acute pulmonary edema.
 - b) Pneumonia.
 - c) Fibrosing alveolitis.
 - d) Lung abscess.
- 13- Which of the following drugs is NOT used in acute asthma :
- a) Zafirlukast.
 - b) Terbutaline.
 - c) Corticosteroids.
 - d) Ipratropium bromide.
- 14- Which of the following occupations is associated with new onset asthma ?
- a) Paint sprayer.
 - b) Insulation installer.
 - c) Typist.
 - d) Truck driver.

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Revision

15- Which of the following is the most common malignancy associated with asbestos exposure ?

- a) Pleural mesothelioma.
- b) Non-Hodgkin lymphoma.
- c) Bronchogenic carcinoma.
- d) Fibrosarcoma.

16- A pleural aspirate with diminished glucose concentration, excess lymphocytes, high specific gravity is characteristic of :

- a) Tuberculous effusion.
- b) Pneumococcal pneumonia.
- c) Asbestosis.
- d) Malignant lymphoma.

17- A patient with a superior mediastinal swelling, bilateral ptosis will benefit most from which of the following :

- a) Prostigmine.
- b) Corticosteroids.
- c) Thymectomy.
- d) Cholinergic drugs.

18- A patient with low grade fever and weight loss has decreased movement on the right side of the chest with decreased fremitus, dullness to percussion, and decreased breath sounds all on the right. The trachea is deviated to the left. The most likely diagnosis is :

- a) Pneumothorax.
- b) Pneumonia.
- c) Pleural effusion.
- d) Atelectasis.

19- Which is false regarding transudative pleural effusion :

- a) Protein < 3.0 g/100ml.
- b) Pleural fluid/serum LDH ratio < 0.6
- c) PH < 7.2
- d) Specific gravity < 1016

20- Which is example of exudative pleural effusion :

- a) Nephrotic syndrome.
- b) Constrictive pericarditis.
- c) SVC syndrome.
- d) Rheumatoid arthritis.

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Revision

- 21- Commonest cause of hypertrophic osteoarthropathy is :
- a) Fallot's tetralogy.
 - b) Bronchiectasis.
 - c) Mesothelioma.
 - d) Bronchogenic carcinoma.
- 22- Which of the following drugs may produce pleural effusion :
- a) Losartan.
 - b) Miltefosine.
 - c) Amiodarone.
 - d) Propranolol.
- 23- Lovibond's angle is approximately :
- a) 120°
 - b) 140°
 - c) 180°
 - d) 160°
- 24- Pink, frothy, and profuse sputum is seen in :
- a) Pneumoconiosis.
 - b) Lobar pneumonia.
 - c) Acute pulmonary edema.
 - d) Aspergilloma.
- 25- Non-cardiogenic pulmonary edema is seen in all EXCEPT :
- a) Fulminant hepatic failure.
 - b) Hemorrhagic pancreatitis.
 - c) Deep sea diving.
 - d) Malignant malaria.
- 26- A patient with hemoptysis and having depressed bridge of the nose is diagnostic of :
- a) Rickets.
 - b) Wegner's granulomatosis.
 - c) Congenital syphilis.
 - d) Rhinocerebral mucormycosis.
- 27- Which of the following is not a paraneoplastic syndrome in bronchogenic carcinoma :
- a) Cachexia.
 - b) Hemoptysis.
 - c) Polymyositis.
 - d) SIADH

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Revision

- 28- Regarding hypoventilation all are true EXCEPT :
- Occurs in severe kyphoscoliosis.
 - Hypoxemia.
 - Hypercapnia.
 - Hypoxemia is not corrected by 100% O₂.
- 29- Impaired diffusion is seen in all EXCEPT :
- Sarcoidosis.
 - Pleural mesothelioma.
 - Emphysema
 - Anemia.
- 30- Which does not belong to the triad of symptomatic bronchial asthma :
- Chest pain.
 - Dyspnea.
 - Wheeze.
 - Cough.
- 31- Caplan's syndrome is coal worker's pneumoconiosis associated with :
- SLE
 - Scleroderma.
 - Rheumatoid arthritis.
 - Ankylosing spondylitis.
- 32- Viral pneumonia may have :
- Signs of consolidation in chest.
 - Splenomegaly
 - High WBC count
 - Foul-smelling expectoration.
- 33- All are commonly seen in Legionella induced pneumonia EXCEPT :
- Cavitation
 - Hyponatremia
 - Proteinuria
 - Confusion
- 34- Asbestosis is NOT related to :
- Mesothelioma of peritoneum
 - Mesothelioma of pleura
 - Progressive massive fibrosis
 - Carcinoma of the lung.
- 35- Which is not common in primary pulmonary tuberculosis
- Cavity.
 - Fibrosis.
 - Lymphadenopathy.
 - Pleural effusion.

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Revision

- 36- Which is not a bedside feature of fibrosing alveolitis
- a) Orthopnea
 - b) Anemia
 - c) Clubbing
 - d) Crepitations
- 37- Chronic respiratory failure is not seen in
- a) Diffuse interstitial fibrosis
 - b) Emphysema
 - c) Pneumothorax
 - d) Chronic bronchitis
- 38- Commonest middle mediastinal mass is
- a) Lymphoma
 - b) Aortic aneurysm
 - c) Bronchogenic cyst
 - d) Thymoma
- 39- commonest posterior mediastinal tumor is
- a) Neurofibroma
 - b) Lymphoma
 - c) Teratodermoid
 - d) Metastatic carcinoma
- 40- Commonest cause of superior mediastinal syndrome is :
- a) Lymphoma.
 - b) Thymoma.
 - c) Bronchogenic carcinoma.
 - d) Retrosternal goiter.
- 41- Which is false regarding Pickwickian syndrome
- a) Marked obesity
 - b) Hyperventilation
 - c) Somnolence
 - d) Right sided heart failure
- 42- The commonest benign pulmonary neoplasm is
- a) Lipoma
 - b) Adenoma
 - c) Fibroma
 - d) Hamartoma
- 43- investigations of highest diagnostic efficacy in acute pulmonary thromboembolism is
- a) ECG
 - b) Ventilation/perfusion lung scan
 - c) Spiral CT
 - d) Arterial blood gases.

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Revision

- 44- High amylase in pleural fluid is found in all EXCEPT
 - a) Esophageal rupture
 - b) Bronchogenic carcinoma
 - c) Sarcoidosis
 - d) Acute pancreatitis
- 45- Which is not a neurological paraneoplastic syndrome of bronchogenic syndrome
 - a) Eaton-Lambert syndrome
 - b) Cerebral thrombosis
 - c) Retinal blindness.
 - d) Subacute cerebellar degeneration.
- 46- Which is not in the list of bedside severity assessment of bronchial asthma
 - a) Kussmaul's sign
 - b) Pulsus paradoxus
 - c) Silent chest
 - d) Central cyanosis
- 47- Pure oxygen therapy may produce all of the following EXCEPT
 - a) Acute lung injury
 - b) Respiratory depression
 - c) Fibrosis of the lung
 - d) Consolidation of the lung
- 48- Upper border of liver dullness is elevated in all EXCEPT
 - a) Ascites
 - b) Right subdiaphragmatic abscess
 - c) Right pneumothorax
 - d) Right pleural effusion.
- 49- Commonest cause of respiratory failure is
 - a) Emphysema
 - b) Fibrosing alveolitis.
 - c) Bronchial asthma.
 - d) Chronic bronchitis.
- 50- Acute lung injury (ARDS) should be differentiated from :
 - a) Acute LVF
 - b) Congestive cardiac failure.
 - c) Acute severe asthma.
 - d) Spontaneous pneumothorax.
- 51- All are features of hypercapnia EXCEPT
 - a) Capillary pulsation
 - b) Central cyanosis.
 - c) Papilledema
 - d) Asterixis.

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Revision

- 52- Classic dermatological manifestation of chronic sarcoidosis is :
- a) Erythema nodosum.
 - b) Maculopapular rash
 - c) Lupus pernio
 - d) Subcutaneous nodules.
- 53- The most reliable symptom of acute pulmonary thromboembolism is
- a) Chest pain
 - b) Hemoptysis.
 - c) Breathlessness
 - d) Syncope
- 54- Pulmonary fibrosis is not produced by :
- a) Tuberculosis.
 - b) Cor pulmonale.
 - c) Progressive systemic sclerosis.
 - d) Rheumatoid arthritis.
- 55- Cranial nerve most commonly affected in sarcoidosis is :
- a) VII
 - b) II
 - c) V
 - d) X
- 56- Commonest cause of death in sarcoidosis is :
- a) Cor pulmonale.
 - b) Pneumonia.
 - c) Nephrocalcinosis.
 - d) Neurosarcoidosis.
- 57- Reactivation of pulmonary tuberculosis is due to :
- a) Malnutrition.
 - b) Low perfusion.
 - c) High ventilation.
 - d) Low PaO₂.
- 58- Commonest sign of aspiration pneumonia is :
- a) Stridor.
 - b) Tachypnea.
 - c) Central cyanosis.
 - d) Crepitations.
- 59- The dose of which antituberculous drug need not to be reduced in severe renal failure :
- a) Rifampicin.
 - b) INH.
 - c) Pyrazinamide.
 - d) Streptomycin.

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Revision

- 60- Bronchial adenoma most commonly present as :
- Cough.
 - Stridor.
 - Recurrent hemoptysis.
 - Chest pain.
- 61- Bradypnea is associated with :
- Narcotic overdose.
 - Acidosis.
 - Pneumonia.
 - Acute lung injury.
- 62- Primary spontaneous pneumothorax is associated with :
- Tall & thin individuals.
 - Non-smokers.
 - Exercise.
 - COPD.
- 63- Predominantly left sided pleural effusion is seen in :
- Congestive heart failure.
 - Amebic liver abscess.
 - Esophageal rupture.
 - Liver cirrhosis.
- 64- Which of the anti-tuberculous drugs should be totally avoided in pregnancy :
- INH.
 - Rifampicin.
 - Ethambutol.
 - Streptomycin.
- 65- The most common organism causing pneumonia during mechanical ventilation in the first 4 days of hospitalization is :
- Staph. aureus.
 - Streptococcus pneumonia.
 - Gram -ve bacilli.
 - Hemophilus influenza.
- 66- Which of the following is NOT responsible for development of interstitial lung disease :
- Carbamazepine.
 - Methotrexate.
 - Amiodarone.
 - Carbimazole.
- 67-Asbestosis may be complicated by all EXCEPT :
- COPD
 - Mesothelioma of pleura.
 - Bronchogenic carcinoma.
 - Pulmonary fibrosis.

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Revision

68- On examination of the chest of a patient with a unilateral tension pneumothorax, which of the following signs is present ?

- a) Chest wall movements are decreased on both sides.
- b) The mediastinum is pulled towards the affected side.
- c) Breath sound may be decreased or absent on the affected side.
- d) Tactile vocal fremitus will be increased on the affected side.

69- Concerning respiratory failure, Which of the following statements is true ?

- a) PaCO₂ is elevated in all types of respiratory failure.
- b) The commonest cause of type II respiratory failure is pneumonia.
- c) Pulsus paradoxus is a sign commonly associated with respiratory failure.
- d) It always presents with dyspnea.

70- A 65-year-old man presents with progressive shortness of breath with a history of heavy tobacco use. Breath sounds are absent on the left side of the chest. Percussion of the left chest reveals dullness. While you place your hand on the left side of the chest and have the patient say “ninety nine,” no tingling is appreciated in the hand. The trachea appears to be deviated toward the left. Which of the following diagnoses is most likely?

- a) Pneumonia
- b) Bronchial obstruction
- c) Pleural effusion
- d) Pneumothorax

71- Which of the following is a typical manifestation of chronic hyperventilation?

- a) Hypoxemia
- b) Hyperphosphatemia
- c) Tetany
- d) Clubbing

72- Which one of the following disorders characteristically produces type I respiratory failure ?

- a) Kyphoscoliosis.
- b) Guillan-Barre polyneuropathy.
- c) ARDS
- d) Inhaled foreign body in a major airway

73- All of the following are causes of an elevated hemidiaphragm EXCEPT :

- a) Laryngeal nerve paralysis.
- b) Surgical lobectomy.
- c) Subphrenic abscess.
- d) Pulmonary collapse.

74 - 77 :

- a) Chest x ray.
- b) arterial blood gas.
- c) CT chest.
- d) V/Q scan.
- e) Peak expiratory flow rate.
- f) FBC.

Which is the most appropriate investigation for each of the scenarios below ?

74- A 17 year-old girl has been admitted with acute onset shortness of breath believed by her GP to be a deterioration in her normally well controlled asthma. She has suffered with asthma since the age of 5 years & is normally well controlled, she has never had any hospital admissions. She usually takes regular salbutamol and beclomethasone.

75- A 27-year-old patient with a history of Marfan's disease presents to emergency with new onset shortness of breath. He has not had any recent illness and has not been exerting himself or playing any sports in the past couple of days. He is not complaining of cough but has noticed a small amount of right sided chest pain since the onset of the shortness of breath.

76- A 51-year-old lady has recently returned from holiday in Alex. Since her return she has noticed a minor pleuritic chest pain, which she thought would resolve with time. 2 days on, the pain is worsening and she has developed shortness of breath. On examination her saturation on room air is 89% , her chest is clear with good air entry & she has no swelling in her calves. D-dimer test is positive and chest X-ray normal.

77- A 41-year-old man is referred by his GP to the respiratory clinic for investigations of his worsening dyspnea & dry cough. He has no past respiratory history & his GP is concerned about finger clubbing, which he has noticed on routine examination. On auscultation of his chest he has noticed fine end inspiratory crepitations and chest X-ray shows a ground glass appearance.

Answers

1- b

2- b

3- d

4- d hemolytic anemia and Mycoplasma

5- b

6- c

7- a

8- d

9- b

10 – a

11- c

12- c

13- a

14- a

Isocyanates are examples of low molecular weight substances that induce asthma. These compounds are found in spray paint & plastics. Insulation installer may be exposed to asbestose, this would result in fibrosis rather than bronchospasm.

15- c

Although malignant mesothelioma is usually associated with a history of exposure to asbestos, it is a relatively uncommon malignancy. In contrast, the risk of bronchogenic carcinoma increases markedly with asbestos exposure (2-3 fold)

16- a

- The exudate, due to pneumococcal pneumonia has the same picture but contains instead of lymphocytes, polymorphonuclear leucocytosis.
- The exudate due to asbestosis is due to development of mesothelioma and is hemorrhagic & doesn't decreases the sugar content of the aspirate.
- In malignant lymphoma, the aspirate is the same as TB but the glucose level is not affected.

17- c

The patient has myasthenia gravis due to thymoma.

18- c

19- c

20- d

21- d

22- c

23- d

Lovibond's angle is the angle made at the meeting of the proximal nail fold and the nail plate when viewed from the radial aspect; normally, less than 165° but exceeding this in clubbing of the fingers.

24- c

25- c

26- b

27- b

28- d

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Revision

29- b

30- a

31- c

32- b

33- a

34- c

35-a

36-b

37-c

38-b

39-a

40-c

41-b

42-b

43-b

44-c

45-b

46-a

47-c

48-c

49-d

50-a

51-b

52-c

53- c

54- b

55- a

56- a

57- c

58- b

59- a (Rifampicin → Renal failure 😊)

60- c

61- a

62- a

63-c

64-d

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Revision

65-a

66-d

67- a

68- c

69- c

70-b

This case is left lung collapse produced by an obstructed bronchus. A possible cause of obstruction and atelectasis of a large amount of left lung tissue could be obstruction of a major bronchus by carcinoma of the lung, especially in an older patient who is a heavy smoker.

71- c

72- c

73- a , phrenic nerve paralysis not laryngeal nerve 😊

74- e

75-a

76-d

77-c

Cardiology revision

Enumerate :

1. Causes of diastolic heart failure :

Any condition that leads to stiffening of the left ventricle can lead to diastolic dysfunction

- a. **Hypertension .**
- b. Aortic stenosis.
- c. Hypertrophic cardiomyopathy.
- d. Old myocardial infarction (*scarred heart muscle*)
- e. Old age (*age alone causes stiffening of the ventricles*)
- f. DM (*stiffening occurs as a result of glycosylation of heart muscle*).
- g. Pericardial effusion , constrictive pericarditis.

2. Causes of left sided heart failure.

3. Causes of right ventricular failure.

4. Causes of acute pulmonary edema (cardiogenic & non-cardiogenic)

5. Framingham criteria for diagnosis of congestive heart failure.

6. Causes of dilated cardiomyopathy. 5 I

7. Complications of congestive heart failure

- Renal failure.
- Liver cell failure : due to associated hepatitis C & cardiac cirrhosis.
- DVT & Pulmonary embolism.
- Valvular heart disease e.g. MR
- Cardiac cachexia especially with RSHF.
- Acute pulmonary edema.
- Stroke, syncope.
- Arrhythmias : atrial & ventricular.

8. Causes of acute heart failure

a) Acute :

- Myocardial infarction.
- Acute valvular regurge : e.g. acute MR due to MI or IE
- Rupture of interventricular septum.
- Hypertensive crisis
- Ventricular arrhythmias e.g. VT, VF
- Acute myocarditis.
- Acute massive pulmonary embolism
- Cardiac tamponade.

b) Acute on top of chronic : e.g. MS with aggravating factor as AF

9. Risk factors of atherosclerosis (coronary heart diseases) : 10

☞ 3 Non modifiable (سنه ، جنسه ، عياله)

☞ Hypertension

☞ 3 HYPER GLUcose (hyperglycemia , Hyperlipidemia , hyperurcemia)

☞ 3 S : Stress , Smoking , Sedentary life.

10. Causes of pulmonary hypertension.

11. Causes of secondary (curable) hypertension.

12. Complications of systemic hypertension.

13. Diagnostic (Duke's) criteria for the diagnosis of infective endocarditis

14. Causes of syncope. 🖐

15. Causes of postural hypotension (orthostatic syncope):

4 A (Autonomic neuropathy , Adison's, Alph blockers, Age : old) +

weakness of the muscles of LL.

16. Causes of atrial fibrillation.

17. Wells Prediction Rule for Diagnosing Pulmonary Embolism :

- Clinical signs of DVT : leg swelling & pain : 3 points
- No alternative diagnosis (e.g. an infiltrate on x-ray consistent with pneumonia) : 3 points
- Tachycardia (heart rate > 100) : 1.5 points
- Bedrest $\geq$ 3 days, or surgery in last 4 weeks : 1.5 points
- History of DVT or PE : 1.5 points
- Hemoptysis : 1 points
- Cancer (treated within the last 6 m) : 1 points

Score > 4 : PE likely. Consider diagnostic imaging : **Spiral CT**, P. angiography...

Score $\leq$ 4 : PE unlikely. Consider **D-dimer** to rule out PE. -ve d-dimer excludes PE

18. Causes of sinus bradycardia.

19. Causes of Premature beats (extrasystole)

20. Types of shock and their causes.

21. Cardiac causes of chest pain.

22. Causes of acute dyspnea with acute chest pain : MI & 6 p (P104)

23. Risk factors of DVT (pulmonary embolism) : 6 O P102

Operative , Old age , Oncology , Oral contraceptive pills , Obesity , Others ☺ : 2C

(Congestive heart failure , Coagulation disorders e.g. protein C & S deficiency)

24. Causes of painless myocardial infarction.

25. Complications of myocardial infarction (Early & Late)

26. Presentations of ischemic heart diseases :

- ☠ Asymptomatic.
- ☠ Angina (stable , unstable)
- ☠ MI
- ☠ May also presented by one of the early complications of MI (.....)

27. Most common causes of cardiac tamponade : 4 C

Cancer , **C**RF , **C**ardiac injuries, **C**ryptogenic (idiopathic)

28. Causes of dry pericarditis : 7 I , 2R + Post cardiectomy syndrome.

29. Causes of pericardial effusion.

30. Causes of heart failure with bradycardia :

Myxedema, B blockers, Digitalis, heart block, uremia.

31. Pathological causes of hyperdynamic circulation = causes of water hammer pulse = causes of capillary pulsation.

- | | |
|---------------|----------------------|
| ○ Anemia. | ○ Thyrotoxicosis. |
| ○ A-V fistula | ○ Gram-ve septicemia |
| ○ Cirrhosis | ○ Beri-Beri |

32. Cardiogenic sources of systemic emboli :

- | | |
|---------------------------|---------------------------|
| ✕ Mitral stenosis. | ✕ Myxoma. |
| ✕ Myocardial infarction. | ✕ Atrial fibrillation. |
| ✕ Myocardial aneurysm. | ✕ Artificial valve. |
| ✕ Mitral valve prolapsed. | ✕ Infective endocarditis. |

33. Causes of refractory heart failure.

34. Endocrinal causes of hypertension.

35. Causes of isolated systolic hypertension :

- Atherosclerosis.
- Thyrotoxicosis. ♪ ♪
- Aortic regurge, PDA.
- Increased stroke volume.
- Complete heart block .

36. **Non-atherosclerotic causes of myocardial infarction :**

- ☒ Coronary artery diseases : spasm, dissection, PAN, Takayasu's disease.
- ☒ Coronary angiography.
- ☒ Aortic stenosis, regurge & prolonged hypotension.
- ☒ Polycythemia, Sickle cell anemia, DIC, TTP.
- ☒ Embolism : IE, Artificial valve, myxoma.

37. **Poor prognostic factors in myocardial infarction :**

I. Early :

- Persistent low BP
- Cardiogenic shock.
- Persistent tachycardia.
- Old age.
- Ventricular arrhythmia.
- Previous MI.
- Anterior MI with 2nd or 3rd degree heart block.
- Cardiac rupture.

II. Late :

-Recurrent angina. Myocardial aneurysm. - DM.

38. **Cardiac indications of β blockers 6**

39. **Uses of diuretics in cardiac patients.**

40. **Indications , contraindications of anticoagulants :**

Indications :

- ☒ DVT & pulmonary embolism. (therapeutic & prophylaxis in high risk patients)
- ☒ Atrial fibrillation.
- ☒ Valvular diseases : MS , artificial valve.
- ☒ Myocardial infarction : to prevent mural thrombi and DVT.
- ☒ Unstable angina.
- ☒ Prevention of stroke after TIAs.

Contraindications :

- Bleeding tendency e.g. liver diseases.
- Hemorrhagic stroke.
- Peptic ulcer.
- Pre & post operative.

41. Causes of chronic hypotension :*

- Severe reduction of COP
- Addison's disease.
- Malnutrition & cachexia.
- Chronic bed rest.
- Neurological disorders :

(interference with neural pathways between vasomotor centre & the efferent sympathetic nerve on the blood vessels.)

DS , Peripheral neuropathy , Syringomyelia , anti-sympathomimetics, spinal cord section, Syphilitic tabes dorsalis.

42. Drugs commonly used during cardiopulmonary resuscitation (CPR)*

- ✎ Epinephrine : It is used in all situations of arrest.
- ✎ Dopamine : It is used mainly cases with cardiogenic shock.
- ✎ Atropine : It is used mainly in cases with significant bradycardia.
- ✎ Antiarrhythmic drugs : according to the situations.

43. Causes of cardiogenic shock :*

- I. Myopathic :
MI, myocarditis, cardiomyopathy, Ca channel blockers.
- II. Mechanical : valvular (stenosis, regurge , Hypertrophic cardiomyopathy)
- III. Arrhythmia : brady & tachycardia.

44. Causes of myocarditis :*

- a) Idiopathic.
- b) Infection :
 - Viral : CMV, Coxsackie, influenza, HIV.
 - Bacteria : Streptococcus (rheumatic carditis), diphtheria
(toxin-mediated heart block)
 - Parasitic : toxoplasma gondii.
 - Others : Spirochaetal (leptospirosis) , Fungal , Rickettsial.
- c) Drugs (hypersensitivity reaction) : methyldopa, penicillin, anti-TB
- d) Radiation : may cause myocarditis but pericarditis more common.
- e) Autoimmune : SLE.

45. Actions of digitalis.

46. Side effect of β blockers, Ca channel blockers, diuretics.

47. Contraindications of thrombolytic therapy. See ttt of MI

48. Factors contribute to digitalis toxicity :

Old age , Renal failure (digoxin), Liver failure (digitoxin), Hyokalemia,
Hypomagnesemia, Hypercalcemia , Hyper & hypo thyroidism,
Drugs (quinine, verapamil, amiodarone).

49. Causes of mitral stenosis.

50. Causes of hemoptysis in MS :

- Pulmonary congestion.
- Pulmonary apoplexy : Rupture of bronchial varices.
- Pulmonary embolism.

51. Causes of pulsus paradoxus.

- 52. Causes of absent radial pulse.**
- 53. Abnormal early diastolic sound heard at the apex of the heart :**
 - Loud P₂.
 - S₃ gallop.
 - Opening snap.
 - Pericardial knock.
 - Tumor plop (atrial myxoma)
- 54. Peripheral arterial signs of chronic aortic regurge.**
- 55. Complications of rheumatic heart diseases. 12**
- 56. Causes of absent apex.**
- 57. Causes of cyanosis (central , peripheral)**
- 58. Causes of clubbing of fingers.**
- 59. Causes of accentuated S1, S2.**
- 60. Causes of diminished S1.**
- 61. Causes of abnormal splitting of S2.**
- 62. Causes of cough in cardiac patient :***
 - Pulmonary congestion.
 - Pulmonary infection.
 - Pulmonary infarction.
 - Enlarged left atrium.
- 63. Cardiac causes of hemoptysis.**
- 64. Cardiac signs of LSHF.**
- 65. Local signs of LVE 🖐**
- 66. Local signs of RVE 6**
- 67. Causes of pallor in cardiac patient :**
 - Anemia.
 - Rheumatic fever.
 - Low COP.
 - Infective endocarditis.
 - Shock.
 - Myocardial infarction.
- 68. Causes of jaundice in cardiac patient :**
 - Hepatitis (injection).
 - Systemic congestion → liver congestion → cardiac cirrhosis.
 - Pulmonary infarction.
 - Anticoagulant therapy.
 - Artificial valve.

69. Signs of hyperdynamic circulations :

- Pulse : tachycardia , water hammer pulse.
- Neck : Carotid pulsation
- Hand : warm , capillary pulsation.
- Heart : accentuated S1 , S2 , haemic murmure.

70. Causes of unequal radial pulse :

- Coarctation of aorta.
- Dissecting aorta.
- Embolism in brachial artery e.g infective endocarditis.
- Pancoast tumor.
- Unilateral cervical rib.

71. Causes of fever in cardiac patient :

- | | |
|--|--------------------------|
| ○ Rheumatic fever. | ○ Myocardial infarction. |
| ○ Infective endocarditis. | ○ Pulmonary infarction. |
| ○ Pericarditis. | ○ Pulmonary infection. |
| ○ Myocarditis. | |
| ○ Collagen diseases e.g. <u>RA</u> associated with <u>AR</u> ☺ | |

72. Criteria of cardiac edema :

- a) Dependent : ankle edema in ambulant , sacral in bed ridden patients
- b) Bilateral : but one side may be affected more due to DVT or in patient sleep on one side.
- c) Pitting.
- d) Edema precedes ascites EXCEPT in ascites precox.

73. Causes of giant “ A “ wave.**74. Causes of systolic expansion of neck vein :**

- I. Giant “V” wave : TR , AF , ASD , Constrictive pericarditis.
- II. Cannon “a” wave :
 - Nodal rhythm.
 - Paroxysmal nodal tachycardia.
 - Occasional cannon : VT , CHB.

75. Causes of non pulsating congested neck vein :

- Mediastinal syndrome, chronic mediastinitis (fibrosis of SVC)
- Severe pericardial effusion.
- Severe constrictive pericarditis.
- Severe RSHF.

76. Causes of pulsating congested neck vein :

I. Restrictive heart diseases :

- a) Early constrictive pericarditis.
- b) Early pericardial effusion.
- c) Restrictive cardiomyopathy.
- d) RV infarction.
- e) COPD.
- f) Acute attack of bronchial asthma.

NB : Inspiratory filling (Kausmaul sign) in a, b, c, d.

Expiratory filling in e, f.

II. Increased atrial pressure : Early RVF (commonest cause), TR,TS.

III. Increased intrathoracic pressure : pneumothorax, emphysema.

IV. Increased intraabdominal pressure : ascites, pregnancy

V. General : hyperdynamic state , AGN (hypertension).

GIVE A SHORT ACCOUNT ON :**1. Management of acute pulmonary edema.**

سؤال مهم جدا ممكن ييجي بصورة مباشرة كما انه يكتب في اجابة الاسئلة الاتية :

- LSHF
- Early complications of MI
- DD of acute dyspnea
- Acute comp of systemic HTN.

Causes :

A) Cardiogenic : ($\uparrow$ pulmonary hydrostatic pressure)

- Acute LSHF : MI , acute MR & AR.
- On top of chronic LSHF : MS with ppt factors : AF

B) Non cardiogenic (ARDS) :

($\uparrow$ capillary permeability)

Def : Diffuse alveolar damage (DAD) ch by $\uparrow$ cap permeability , pulm edema & refractory hypoxia .

Etiology : 2 s , 2 b , 2 p

- Sepsis
- Aspiration of gastric contents.
- 2 P : Pneumonia , Pancreatitis.
- 2 B : Burn , Bl transfusion .
- Terminal renal & hepatic failure .

C/P of acute pulmonary edema :

- Acute severe dyspnea (at rest & orthopnea)
- Cough with frothy blood tinged sputum.
- Central cyanosis
- Sweating , irritability
- Bilateral basal crebitations & rhonchi
- **Feature of the cause e.g. : MI** ويذكر

DD of acute dyspnea & chest pain : see book p 104 (MI & 6 P) مهمة جدا

ممکن تیجی سؤال مباشر علاوه انها هتکتب مع معظم اسئلة الكارديو

Investigations :

- Chest x ray :
- ECG : MI وتذكر
- Echo :
- Catheterization.
- Cardiac enzymes : for MI
- ABGs : $\downarrow$ O₂ , $\downarrow$ PCO₂ ($\uparrow$ in late cases)
- Inv for ARDS : no LSHF (PCWP < 18)

Treatment :

- Cardiogenic : (.....) see acute heart failure p14
- Non cardiogenic : TTT of ARDS (Antibiotics, cortisone, mech ventilator)

2. Etiology, C/P, Investigations, Treatment of LSHF

لا بد من ذكر ال acute heart failure

3. Congestive heart failure : LSHF + RSHF

4. Diastolic heart failure : see cardiology book p15

5. Refractory (Intractable) heart failure .

6. Diagnosis, prophylaxis, treatment of rheumatic fever.

7. Auscultation of mitral stenosis.

8. Diagnostic criteria of Infective endocarditis.

= Duke's criteria : see above

9. Etiology, C/P, Investigations, Treatment of Infective endocarditis.

- i. Etiology : 2 factors (Infection & underlying cardiac disease).....

Types:

- ✎ **Sub acute IE** : most common & requires combinations of the 2 factors (infection & cardiac lesion).
- ✎ **Acute IE** : affecting the healthy endocardium ,usually occurs in the right side of the heart in addicts → Lung abscess esp with staph aureus.

- ii. C/P : تخيل ان واحدة حلوة اوي داخله عليك دلوقتي

Toxic face	تبصلها
Fever	تخط ايدك علي دماغها
	تبص في عينيها و بتمعن
	تمسك ايدها
Spleen, kidney, Brain , Lung	تكشف عليها
	وبعدين قلبها

- iii. Investigations : اهم كلمتين هما

Blood culture & TEE (Trans Esophageal Echo)

- iv. Treatment : (Prophylactic , therapeutic)

10. Complications of acute myocardial infarction :

✎ Early (acute) : 6

✎ Late (Chronic) : 6

Acute : see book p 57

C/P , Inv , ttt وتكتب في كل واحدة

a- Shock :

Cardiogenic : هام جدا

- c/p : acute pulm edema
- Inv : ↑ JVP
- ttt : Dobutamine + intra aortic ballon counterpulsation .

Neurogenic :

- C/P : hypotension , bradycardia
- Inv : low JVP
- ttt : morphine

b- Acute HF = Acute pulmonary edema

c-Arrhythmia : V Tach وتذكر ال

11. Investigations , Treatment of myocardial infarction.

12. Unstable angina :

Definition : Angina at rest, lasting more than 10 min, ↑ frequency & severity.

Etiology :

- a) Non occlusive coronary thrombosis on top of atherosclerosis.
- b) Post infarction angina.
- c) Coronary artery spasm : Prinzmetal (Variant) angina .
 - Unpredictable angina, at rest.
 - ECG : Transient ST elevation.
 - TTT : Nitrate & Ca channel blockers are drugs of choice.

β blockers are contraindicated (↑ coronary spasm)

Investigations of unstable angina :

- ECG : show changes in about 30 - 50%
- Cardiac enzymes : are NOT elevated ,to differentiate it from MI.
- Coronary angiography.

Treatment : to reduce progression to MI

I. Medical :

- ✍ IV infusion nitroglycerin : 5-10 µg/min and is raised gradually.
- ✍ β blockers.
- ✍ Anti -platelets : Aspirin , Clopidogrel (*Plavix*)
- ✍ LMW heparin : enoxaparine (clexane)

II. Coronary revascularization : PTCA or CABG.

13. Acute coronary syndrome :

- A. Unstable angina.
- B. MI (STEMI , NSTEMI)

14. The anatomy of coronary arteries.**15. Atypical presentation of myocardial infarction.**

= clinical presentation of IHD - typical chest pain.

Don't forget silent MI.

16. Diagnosis & Treatment of angina.**17. Early management of myocardial infarction****18. Complications (Target organ damage) of systemic hypertension.**

👉 : 2C , 2R , Vascular

19. Lines of treatment of systemic hypertension, pharmacological details of 3 antihypertensive drugs.**20. Hypertensive crisis :**

It is characterized by extremely high blood pressure

Hypertensive urgency:

Rapid rise of BP > 220/120 mmHg & **NOT** associated with target organ damage e.g. renal failure , heart failure .

Hypertensive emergency:

Rapid rise of BP > 220/120 mmHg & associated with target organ damage .

Malignant HTN : Hypertensive crisis with grade IV retinopathy plus papilloedema.

Accelerated HTN : Hypertensive crisis with grade III retinopathy.

Accelerated : Ac³lated → grade **3** retinopathy ☺

Approach to the patient :

I. History :

- a) History of hypertension or other significant diseases.
- b) Medication use.
- c) Symptoms of TOD (target organ damage) : 🖐 2C, 2R, vascular
 - Cardiac : chest pain, shortness of breath.
 - Renal : hematuria , decreased urine volume.
 - CNS : nausea, vomiting, visual changes, seizures.

II. Examination :

- a) Blood pressure reading in both arms.
- b) Ophthalmoscope examination.
- c) Neurological examinations : e.g. signs of lateralization.
- d) Cardiac examination : e.g. Auscultation heart.
- e) Abdominal examination : e.g. for bruits .

III. Investigations :

- a) Lab : Electrolytes, Urea , creatinine, CBC
- b) Echocardiography.

Treatment :

- It is unwise to lower the BP too quickly as it may lead to organ hypoperfusion & stroke .
- The initial goal of therapy should be to achieve BP diastolic 100-110 mmHg
- In hypertensive emergencies (with TOD), BP control should be within 1 hour to decrease the risk of permanent damage.

– In hypertensive urgency, BP control is more slowly over days not hours.

– **Drug therapy :**

i. Rapid acting antihypertensive drugs :

- Na nitroprusside (Nipride) : 0.5 – 5 $\mu\text{g/kg/min}$ (infusion) .
- Nitroglycerine : 10 - 100 $\mu\text{g/kg/min}$.
- Diazoxide : 100 – 300 mg rapidly IV .
- Hydralazine : 20 mg IV .
- Labetalol : 20 mg IV every 10 minutes until control of BP (maximum 200 mg)
- Fenoldopam : is a new dopamine receptor agonist .
- Enalapril : IV 1.25 - 5 mg (over 5 min)/6h
- Captopril : 25 mg , repeat /30min if necessary.
- Lasix may be used with one of the above agents .

NB : *Never use sublingual nifedipine to reduce BP (it can cause an uncontrollable drop in BP and stroke).*

ii. Specific treatment :

a) Hypertensive encephalopathy : add

- ✎ Anticonvulsant : Diazepam IV .
- ✎ Cerebral dehydrating measures : 25 % Mannitol infusion with lasix .

b) Treatment of the target organ damage (TOD) : stroke , HF & RF .

21. Hypertensive encephalopathy.

Don't forget how to differentiate between stroke & hypertensive encephalopathy

- Stroke : signs of lateralization. (unilateral)
- Hypertensive encephalopathy : No signs of lateralization. (bilateral)

Notice that α methyl dopa is contraindicated MCQ

22. C/P, Investigations of pulmonary embolism.

Don't forget DD of acute dyspnea with acute chest pain (MI & 6 b)

23. Prophylaxis & treatment of pulmonary embolism.

24. There are no clinical or laboratory finding that will confirm or exclude the diagnosis of pulmonary embolism Comment

25. C/P, Investigations, Treatment of atrial fibrillation.

26. C/P, Investigations, Treatment of Ventricular tachycardia.

27. C/P, Investigations, Treatment of complete heart block.

28. C/P, Investigations of dilated cardiomyopathy.

✎ C/P : C A T (CHF, Arrhythmia, Thrombosis)

✎ Investigations : scheme + biopsy.

29. Management of pericardial effusion.

30. Diagnosis of cardiac tamponade.

31. What are the clinical features favoring restrictive cardiomyopathy rather than constrictive pericarditis.

✓ Prominent apical pulse.

✓ Normal y wave, large V wave.

✓ Associated signs of mitral or tricuspid regurge : due to involvement of the papillary muscles by fibrosis.

✓ No pericardial knock.

✓ X ray : no or mild RVE with no pericardial calcification.

✓ The diagnosis is proved by abnormal endomyocardial biopsy.

32. Cigarette smoking as a cardiac risk factor. ORAL EXAM

- ☒ It increases platelets adhesion, aggregation & whole blood viscosity.
- ☒ It increases carboxyhemoglobin & hematocrite value.
- ☒ It increases HR, catecholamine release & sensitivity.
- ☒ Decreases threshold of ventricular fibrillation.
- ☒ Decreases level of HDL
- ☒ It increases morbidity from peripheral vascular diseases.
- ☒ It increases mortality due to aortic aneurysm.
- ☒ Increases incidence of sudden death, coronary artery disease & malignant hypertension. (smoking accounts for 30% of all Cardiovascular deaths)

33. When do you suspect an atrial myxoma ? ORAL EXAM, MCQ

- All features of mitral stenosis with intermittent varying murmurs without opening snap.
- Clinical features & Echo mimic infective endocarditis but with -ve blood cultures & splenomegaly is absent. MCQ
- Positional syncope.
- Pulmonary edema without obvious cause.

34. DD of acute chest pain.

35. DD of RSHF.

36. DD of LSHF.

37. DD of acute dyspnea with acute chest pain.

38. DD of regular tachycardia.

39. DD of LCOP with systemic congestion.

40. DD of systolic murmurs (over the apex & over the base of the heart) P33
41. Differences between cardiac & bronchial asthma.
42. Differences between rheumatic & rheumatoid arthritis. *See rheumatology*
43. Differences between rheumatic fever & infective endocarditis.
44. Differences between: Stroke & hypertensive encephalopathy.
45. Differences between : AF & premature beats.
46. Cardiac, renal & hepatic edema.
47. Is HF always associated with a decreased EF ? **ORAL EXAM**

Systolic dysfunction is defined as a decrease in contractile function most commonly measured as a decrease in EF. Many patients with HF have a decreased EF. However, almost half of all patients with HF have a normal EF. In some of these patients, diastolic dysfunction is the cause. Diastolic dysfunction results when the heart is stiff and ventricular filling is impaired, resulting in increased end-diastolic pressures. Patients may have diastolic dysfunction with or without systolic dysfunction. Typical signs and symptoms of HF occur with either normal or abnormal EF. Typically, the prevalence of HF with a normal EF is most common in elderly women.

Cases

1- A 65-year-old man with a history of hypertension & diabetes mellitus is seen in the ER complaining of sudden onset of chest pain and severe dyspnea at rest. He is currently taking enalapril (5 mg twice a day) to control his blood pressure. Physical examination reveals a pale white male in acute respiratory distress, who is anxious and diaphoretic. His blood pressure is 180/100 mm Hg, his apical pulse is 170 /minute and irregular, and his respiratory rate is 40 per minute. Examination of the lungs reveals rales extending two thirds up from the base of the lung fields bilaterally. Examination of the heart reveals a jugular venous pressure of 12 cm of water, a third sound (S₃), and a grade 2/6 pansystolic murmur heard at the apex. Arterial blood gas determinations show a partial pressure of oxygen of 50 mm Hg, a partial pressure of carbon dioxide of 30 mm Hg, and a pH of 7.48. A chest radiograph shows an enlarged heart and pulmonary edema. The ECG reveals atrial fibrillation with a ventricular response of 170 beats per minute, a loss of R waves, and 4 mm of ST elevation.

- a) What is the provisional diagnosis ?
- b) What is causing the pulmonary edema in this patient?
- c) What medical therapy should be used to treat this patient acutely ?

a) What is the provisional diagnosis ?

A diagnosis of acute anterior wall MI complicated by atrial fibrillation and pulmonary edema .

b) What is causing pulmonary edema in this patient ?

- 1) **MI** impairs both the systolic and diastolic function of the left ventricle.lead to elevated filling pressures of the left ventricle and the left atrium $\Rightarrow$ Pulmonary congestion $\Rightarrow$ resulting in the transudation of fluid into the interstitium and then into the alveolar space.
- 2) **Atrial fibrillation with a rapid ventricular response**
 - i. the loss of atrial systolic contraction $\rightarrow$ elevates the left atrial pressure $\rightarrow$ Pulmonary congestion.
 - ii. the rapid ventricular rate results in significant shortening of diastolic filling time further impairing filling of the left ventricle.
 - iii. the rapid ventricular rate increases myocardial oxygen demands, which may increase ischemia, which in turn worsens the pulmonary edema.
- 3) **Hypertension**, especially when chronic and poorly controlled, produces a stiff, hypertrophied myocardium causing elevated ventricular filling pressures.
- 4) **Mitral regurge** (Pansystolic murmur): due to papillary muscles dysfunction or rupture.
- 5) **Anxiety** secondary to the pain and breathlessness is likely to increase the heart rate and blood pressure, thereby contributing to pulmonary edema by increasing the afterload.

c) What medical therapy should be used to treat this patient acutely ?

- 1- TTT of MI : acute coronary reperfusion (revascularization) : PTCA
- 2- TTT of acute pulmonary edema (.....)

2- A 45-year-old man is seen in the outpatient department complaining of intermittent throbbing headaches that have occurred every morning for 2 weeks. He has a history of untreated, asymptomatic, sustained high blood pressure (160 to 170/100 mm Hg) of 4 years' duration. He has no history of palpitations, sweating, tremor, or periodic paralysis. His father was also hypertensive and died of stroke at 67 years. The patient has smoked cigarettes, two packs per day, for 30 years. He is taking no medications. His physical examination reveals a blood pressure of 170/110 mm Hg and a heart rate of 90 per minute and regular. Fundus examination reveals the presence of arterial vasoconstriction. Cardiac examination reveals a sustained apex, S₄, no S₃, and no murmur. During abdominal examination, no bruit or mass is found and the neurologic and other systems are unremarkable.

- a) How should blood pressure be measured?
- b) What is the most likely cause of this patient's hypertension?
- c) What laboratory tests are indicated?
- d) Will lifestyle changes improve his blood pressure?
- e) What is the target blood pressure with treatment?

a) How should blood pressure be measured? ☺

The patient should be seated in a chair with his feet on the floor in a quiet place for at least 5 minutes. At least two measurements should be made. Systolic blood pressure is defined as the blood pressure at which the first sound is heard and diastolic pressure is defined as the pressure at the disappearance of the sounds.

b) What is the most likely cause of this patient's hypertension?

The most likely cause of this patient's hypertension is essential hypertension.

c) What laboratory tests are indicated?

- Blood urea , serum creatinine.
- Electrolytes : K , Ca.
- Blood glucose, Lipid profile (cholesterol and triglyceride)
- Urine : for blood , protein and glucose.

d) Will lifestyle changes improve his blood pressure?

- i. Stop smoking.
- ii. Weight reduction (BMI should be $< 25 \text{ Kg/m}^2$)
- iii. No alcohol.
- iv. Regular exercise.
- v. Diet : Low salt : $< 6\text{gm/d}$, Potassium : increase fruits & vegetables, low saturated fat diet.
- vi. Avoid stressful conditions as possible (meditation)

e) What is the target blood pressure with treatment?

The target blood pressure with treatment is less than 140/90 mm Hg. If the patient had diabetes or chronic kidney disease the recommended target blood pressure would be less than 130/80 mm Hg.

You instruct your patient in lifestyle changes and start him on lisinopril 10 mg once daily. In 2 weeks you increase the lisinopril to 20 mg daily because the blood pressure is still 160/98 mm Hg. Electrolytes and creatinine levels are unchanged. The increased lisinopril does not significantly alter the pressure and you add chlorthalidone at 25 mg daily. In 4 weeks his blood pressure is 139/88 mm Hg and his electrolytes and creatinine levels are normal. The blood pressure remains well controlled for the next 6 months, but the patient does not return for the next follow-up visit. Two years later, he presents to the ER complaining of blurred vision and severe headaches. His physical examination at that time reveals a blood pressure of 240/140 mm Hg and heart rate of 100 per minute. He is mildly confused and the fundus examination reveals retinal hemorrhages, exudates, and papilledema. Heart examination shows clear lungs and a sustained left ventricular apical impulse and S4. The chest radiograph shows mild to moderate cardiomegaly. His serum creatinine level is 2.4 mg/dL. The ECG shows normal sinus rhythm and ST-segment depression and T-wave inversion. Troponin is normal and he has no chest pain.

- a) What is the diagnosis?
- b) What is the most likely reason for the fundus findings and the serum creatinine level of 2.4 mg/dL?
- c) What should be the plan of treatment now?

a) What is the diagnosis ?

The diagnosis is hypertensive crisis (malignant hypertension)

b) What is the most likely reason for the fundus findings and the serum creatinine level of 2.4 mg/dL?

Marked increase in blood pressure causing a damage to the vascular endothelium causing fibrinoid necrosis in the vessels of the eye and in the kidney. These changes are exacerbated by activation of the rennin-angiotensin system.

c) What should be the plan of treatment now?

See above (The approach to a patient with hypertensive crisis.

3- A 42 years old woman is admitted for weakness and fever. She has been taking tetracycline for 2 weeks at home for symptoms of flu with no improvement. The patient is pale & feverish with petechiae in the conjunctiva. Examination of the heart reveals a harsh loud pansystolic murmur. The spleen is palpable 4 cm below the left costal margin.

a) What is the most likely diagnosis ?

b) What are the other clinical finding you may find ?

c)How to manage the case ?

Likely diagnosis : **Infective endocarditis.**

4- A 45 year old man came complaining of chest pain with exertion, several weeks of worsening exertional dyspnea, history of lightheadedness as if he was about to faint. He has orthopnea with occasional paroxysmal nocturnal dyspnea. He does not smoke or drink alcohol.

On examination : temp 37°C, HR 104/m, blood pressure 115/90 mmHg & respiratory rate 16/m. Examination of the head and neck revealed congested neck vein. Chest examination : Bilateral basal inspiratory crackles. Cardiac examination : apex is felt in the 6th space outside MCL, his heart rhythm is regular with S4 at the apex. Ejection systolic murmur at the upper right sternal border that radiates to his carotid.

- a) What is the most likely diagnosis?
- b) What is the most appropriate investigation to reach the diagnosis? Why?
- c) What are the indications of surgery?

a) The most likely diagnosis is congestive heart failure, possibly as a result of aortic stenosis

- Data with :

- Data suggest CHF : Exertional dyspnea, chest pain, PND, syncope, tachycardia, bilateral basal crackles, congested neck vein, ..
- Data suggest AS : Exertional syncope, S4, ejection systolic murmur at the upper right sternal border that radiates to his carotid, ..

- No data against.

b) Echocardiography : to assess the aortic valve area, the LV systolic function (EF) & to estimate the pressure gradient across the valve.

c) Indication of surgery : "Aortic valve replacement"

- Valve area < 0.8 cm²
- Systolic pressure gradient across the aortic valve > 50 mmHg.
- Severe symptoms : as it indicates significant pressure gradient across the valve (> 50 mmHg)

5- A 31 year old man complaining of a sudden onset of sharp left chest pain, increased by deep inspiration & coughing. Physical finding, chest X ray and ECG are normal. What is your differential diagnosis ?

- Acute pleurisy (coxsackievirus A,B)
- Acute pericarditis (coxsackievirus B)
- Pneumonia (viral)
- Pulmonary embolism or infarction.
- Pneumothorax .

6- A 55 year old man presents to the emergency center with acute onset of squeezing and diffuse anterior chest pain associated with diaphoresis and dyspnea.

- a) What is your differential diagnosis ?
- b) Which tests will help confirm your clinical suspicions ?
- c) Is a normal troponin helpful in excluding an acute MI ?

a) **DD :**

- Acute MI.
- Angina.
- Aortic dissection.
- Acute pericarditis.
- Acute pulmonary embolism.
- Acute pneumothorax.

b) **Which tests will help confirm your clinical suspicions ?**

- Serial ECG : to look for ST elevation (MI, dry pericarditis), ST depression (angina , NSTEMI).
- Serial cardiac enzymes : will help to confirm the diagnosis of MI

- Chest X ray : to look for evidence of pneumothorax, wedge shaped pulmonary opacity suggests pulmonary embolism.
- NB : The absence of any ECG changes of MI or ischemia in patient with severe anterior chest pain radiating to the back should suggest the clinical diagnosis of aortic dissection (confirmed by CT, MRI, TEE).

c) Is a normal troponin helpful in excluding an acute MI ?

A normal troponin 8 or more hours after the onset of chest pain generally excludes acute MI but does not exclude Acute coronary syndrome.

7- a 68 year old asthmatic man has stable exertional angina of 4 years duration. His past medical history reveals intermittent claudication after walking 50 yards.

- What is your approach to medical therapy of his angina ?

This man has 3 medical problems : asthma, angina, intermittent claudication.

Of the available antianginal drugs :

- β blockers are contraindicated because of the presence of asthma.
Cardioselective β blockers (metoprolol, atenolol) may be used in low doses in asthma.
- The presence of peripheral vascular disease, as manifested by intermittent claudication, also is contraindication for the use of any β blocker.
- So, Ca channel blockers or nitrate are the anti-anginal drugs of choice in this patient.

8- A 50 year old man, heavy smoker, presented to ER with severe retrosternal chest pain of one hour duration. On examination he was sweaty , his pulse was 94/m, his BP was 100/70. A third sound was heard over the apex . Troponin levels was high.

a) What is the most proper diagnosis ?

b) How would you manage this case ? (investigations and treatment)

Six hours later runs of ventricular tachycardia started to show on the monitor.

c) What are you going to do ?

In the next few days he was stable, and was discharged from the hospital.

d) In your opinion, what are the medications he should receive ?

Ten days later he developed recurrent episodes of angina.

e) What would be the appropriate management ?

a) Most likely diagnosis is **myocardial infarction** with LVF because :

- Data with : severe retrosternal chest pain of one hour duration, heavy smoker old patient, sweating , high troponin. LVF suggested by S₃.
- No data against.

b) Investigations of MI , TTT : pre hospital & hospital ttt

c) Anti-arrhythmic drugs e.g. Lidocaine or amiodarone , cardioversion.

d) After discharge ttt of MI : 🖐

e) PTCA or CABG is considered (mention indications) , ttt of unstable angina.

9- A 45 year old diabetic, heavy smoker, presents with recurrent precordial pain, often radiating to the chin & left shoulder. The pain is precipitated by moderate physical activity or emotional stress, and is relieved by rest and sublingual nitrate.

- a) What is your investigations ?
- b) How to investigate the case ?
- c) How to treat the case ?

Two years later, he was brought to the ER in severe and persistent acute chest pain, with the same distribution as before, but without relief by rest, sedatives or nitrates. ECG showed depressed ST segment and inverted T wave in leads I, II, aVL and v4-6. CK MB was normal.

- d) What is your diagnosis ?

Three years later, the patient was brought again in shock, with BP 80/30 mmHg, regular pulse with a rate of 40/m, venous pulsation in the neck at a rate of 100/m, with occasional cannon waves. The patient denies having had significant chest pain at the onset or before the episode. ECG shows deep wide Q , raised convex ST and inverted T in leads II, III and aVF together with P-QRS dissociation in all leads.

- e) What is the probable diagnosis ?
- f) How to investigate this patient ?
- g) How to treat this patient ?

a) The most likely diagnosis is stable angina.

d) unstable angina because of normal CK MB & depressed ST segment.

Serial cardiac enzymes is recommended to exclude NSTEMI.

e) Painless inferior myocardial infarction complicated by complete heart block.

NB : painless MI may be due to diabetic neuropathy.

f) Investigations of MI (.....)

g) TTT of MI but avoid morphine , β blockers & nitrate because of shock.

TTT of complete heart block : atropine , temporary pacemaker.

Remember

Site of infarction as regard to ECG

- ✓ Anterior infarction : $V_2 - V_5$
- ✓ Inferior MI : III, aVF
- ✓ Lateral MI : I, aVL, $V_5 - V_6$.
- ✓ Anterolateral MI : I, aVL, $V_2 - V_6$
- ✓ Posterior MI : dominant R waves in lead V_1

10- A 67-year-old woman is admitted to the hospital complaining of severe symptoms of shortness of breath that has worsened over the last 12 hours. She tells you that she has had diabetes mellitus for the last 20 years and hypertension that has been fairly well controlled for 15 years. Your examination reveals an S3 gallop and rales to her midscapular area. She also tells you that she has experienced recurrent chest heaviness over the last 2 days. When the ECG is done, there are Q waves in leads V2, V3, V4, and V5. A call to her regular physician reveals she had a normal ECG when he saw her 1 month ago.

- a) What is the provisional diagnosis ?
- b) At this point, what should you do?
- c) What therapeutic interventions should be instituted at the time of admission?
- d) What are the indications of CABG ?

a) Recent anterior MI with left ventricular failure.

b) She needs to be hospitalized immediately, treated for HF, monitored for arrhythmias and recurrent ischemia.

Thrombolytic therapy or PCI is not indicated because this is a completed infarction, nearly 48 hours old.

c) TTT of cardiogenic pulmonary edema : oxygen administration and diuretics...

TTT of MI : 🖐

monitoring is necessary to detect arrhythmias.

d) Indications of CABG :

- Left main coronary artery disease or 3 vessels disease.
- For diabetic patient with 2 or 3 vessels disease.

11- A 59 year old man presents with acute shortness of breath, epigastric pain and vomiting. Examination reveals a pulse of 58/m and BP 60/30mmHg. The JVP is significantly raised, lung and heart examination is within normal limit. ECG reveals ST elevation in leads III and aVF.

- a) What is the most likely diagnosis, and why ?
- b) I know that you not consider perforated peptic ulcer in the diagnosis of this case. Why ?
- c) Mention the most likely cause of bradycardia in this case ?

a) The most likely diagnosis is inferior MI.

Data with :

☞ Triad of : Distended neck veins, Hypotension, Clear lung.

☞ ECG finding.

b) Perforated peptic ulcer often presents with epigastric pain and vomiting and might lead to a septic shock. This manifests with hypotension, tachycardia and the JVP is not raised. Also one would not expect to see ischemic changes on ECG. So

data against perforated peptic ulcer are :

- High JVP.
- Pulse : 60/m.
- ECG findings.

c) Bradycardia is often seen with inferior MI because the right coronary artery.

MCQ

1- The cause of silent myocardial infarction may be :

- a) Athletes
- b) Obese
- c) Females
- d) Diabetes mellitus**

2- Which of the following best describes the effect of calcium ions on the myocardium?

- a) Positively inotropic**
- b) Negatively inotropic
- c) Positively chronotropic
- d) Negatively chronotropic

3- Wide fixed splitting of the second heart sound occur in :

- a) Mitral stenosis
- b) Mitral regurge
- c) Atrial septal defect**
- d) Ventricular septal defect

4- In the absence of critical stenosis of the coronary arteries, angina pectoris occurs most frequently with which of the following valvular heart diseases?

- a) Mitral stenosis
- b) Mitral regurge
- c) Aortic stenosis**
- d) Aortic regurge

5- Which of the following cardiac lesion has the highest risk of developing infective endocarditis?

- a) VSD
- b) ASD
- c) Mitral valve prolapse with regurgitation
- d) MS

☞ VSD : high risk lesion for IE

☞ MS : intermediate risk

☞ ASD : low risk

6- Which lipid pattern suggests the lowest risk for CAD?

- a) Total cholesterol 215 mg/dL, HDL cholesterol 28 mg/dL
- b) Total cholesterol 215 mg/dL, HDL cholesterol 43 mg/dL
- c) Total cholesterol 180 mg/dL, HDL cholesterol 29 mg/dL
- d) Total cholesterol 202 mg/dL, HDL cholesterol 45 mg/dL**

This combination has the lowest risk, although the total cholesterol is on borderline, the high HDL cholesterol is protective.

- Total cholesterol : N → < 200, borderline : 200-240, high ≥ 40
- HDL : N → 40-50 in ♂ 50-60 in ♀
- LDL : < 70 Ideal for people at very high risk of heart disease, < 100 Ideal for people at high risk of heart disease.

7- Which one of the following is characteristic of atrial myxoma?

- a) It usually originate in the right atrium
- b) The clinical signs can mimic severe mitral regurgitation
- c) Recurrence is frequent, even after successful surgical removal
- d) Echocardiogram is diagnostic in most cases**

75% of cases originate in left atrium, the clinical signs mimic MS

8- A 52-year-old woman with no prior medical history presents in the emergency department with a 3-hour episode of crushing substernal chest pain. The pain radiates to her arm and neck. An ECG reveals ST segment elevation in leads II, III and aVF. The patient has no obvious contraindication to anticoagulation. Which of the following is the most optimal treatment at this time?

- a) Administration of IV fluids
- b) Administration of aspirin and heparin only
- c) Administration of thrombolytic therapy, heparin, and aspirin**
- d) Cardiac surgery to bypass the occluded vessel

NB: *If the patient is hypotensive, IV fluids may be needed.*

9- The most effective diagnostic modality in a case of subacute bacterial endocarditis is :

- a) ECG
- b) Transthoracic echocardiogram (TTE)
- c) Transesophageal echocardiogram (TEE)**
- d) Cardiac catheterization

10- Which of the following therapies has been shown to increase survival in a case of post myocardial infarction patients who have ejection fraction > 50% ?

- a) Angiotensin-converting enzyme inhibitor
 - b) Beta blocker**
 - c) Digoxin
 - d) Loop diuretic
- Beta blockers have been shown to improve survival after myocardial infarction (MI) by decreasing both oxygen demand and the incidence of ventricular arrhythmia.
 - Angiotensin-converting enzyme (ACE) inhibitors (choice A), such as enalapril, have been shown to improve survival in post-MI patients who have ejection fractions less than 40%.

11- A 51-year-old man is brought to the emergency department for chest pain. The patient has chronic stable angina that is usually precipitated by activity and relieved by rest. About 3 weeks ago, his physician prescribed sildenafil (Viagra), and he has been using the drug with success. This morning, he developed acute onset of substernal chest pain, radiating to his left arm. This pain is not relieved by rest. The patient last took a sildenafil the night before. Which of the following treatments is absolutely contraindicated in this situation?

- a) Captopril
- b) Metoprolol
- c) Nitroglycerin**
- d) Tissue plasminogen activator (tPA)

The co-administration of nitrates within 24 hours after taking sildenafil is absolutely contraindicated. The vasodilatory effects of nitrates are amplified when administered in the presence of sildenafil (Viagra), which can lead to refractory and life-threatening hypotension. Therefore, patients using sildenafil should be instructed to report their use on presentation to any emergency department and to never take nitrates while using the drug.

12- A 57-year-old man presents to his physician for follow-up. He has a positive family history for coronary artery disease and he has smoked one-half pack of cigarettes per day for the past 20 years. Which of the following lipid patterns would most strongly suggest the need for pharmacologic therapy in this patient?

- a) Total cholesterol 180 mg/dL, LDL cholesterol 140 mg/dL
 - b) Total cholesterol 230 mg/dL, LDL cholesterol 100 mg/dL
 - c) Total cholesterol 245 mg/dL, LDL cholesterol 165 mg/dL**
 - d) Total cholesterol 285 mg/dL, LDL cholesterol 100 mg/dL
- A patient with 2+ risk factors and an LDL of greater than 160 mg/dL needs medical therapy.
 - A total cholesterol of 180 mg/dL, LDL cholesterol of 140 mg/dL (choice a) : in this patient could be managed with a trial of dietary modification and education.
 - A total cholesterol of 285 mg/dL with an LDL cholesterol of 100 mg/dL (choice d) : does not require drug therapy. The total cholesterol is elevated, but the LDL is not, suggesting high HDL level.

13- In a patient with central chest pain at rest :

- a) Relief of pain by nitrates excludes an esophageal cause
- b) Features of autonomic disturbance are specific to cardiac pain
- c) Intrascapular radiation suggests the possibility of aortic dissection**
- d) Myocardial ischemia radiates to the neck but not the jaw

Notice that autonomic disturbance may occur in severe pain from any cause.

14- Recognised causes of secondary hypertension include EXCEPT

- a) Persistent ductus arteriosus.**
- b) Coarctation of the aorta
- c) Primary hyperaldosteronism.
- d) Acromegaly

15- As regarded to the auscultatory findings listed below, which is correct?

- a) Third heart sound-opening of mitral valve
- b) Varying intensity of first heart sound-atrioventricular dissociation**
- c) Soft first heart sound-mitral stenosis
- d) Fourth heart sound-atrial fibrillation

16- In the investigation of suspected angina pectoris :

- a) Physical examination is of no clinical value
- b) The resting ECG is usually normal**
- c) Exercise-induced elevation in blood pressure indicates significant ischemia
- d) A normal ECG during exercise excludes angina pectoris

Physical examination is important to exclude anemia and valvular stenosis.

17- In the treatment of patients with angina pectoris :

- a) Aspirin reduces the frequency of anginal attacks.
- b) Glyceryl trinitrate is equally effective when swallowed as when taken sublingually
- c) Calcium antagonists may cause peripheral edema**
- d) β blockers are more effective than other anti-anginal agents

18- In the treatment of acute myocardial infarction :

- a) **Aspirin given within 6 hours of onset reduces the mortality**
- b) Diamorphine is better given intramuscular than by any other route
- c) Immediate calcium channel blocker therapy reduces the early mortality rate
- d) Nitrate therapy reduces the early mortality rate

19- Drug therapies which improve the long-term prognosis after myocardial infarction include EXCEPT :

- a) Aspirin
- b) **Calcium antagonists**
- c) ACE inhibitors
- d) β -blockers

20- Clinical features suggesting aortic stenosis include :

- a) Late systolic ejection click
- b) Slapping apex beat
- c) **Syncope associated with angina**
- d) Loud second heart sound

21- Disorders associated with aortic regurgitation include EXCEPT

- a) Ankylosing spondylitis
- b) Marfan's syndrome
- c) Syphilitic aortitis
- d) **Persistent ductus arteriosus**

22- In atrial septal defect :

- a) The lesion is usually of primum type
- b) The initial shunt is right to left
- c) Splitting of the second heart sound increases in expiration
- d) **The ECG typically shows right bundle branch block**

23- Dilated (congestive) cardiomyopathy is EXCEPT

- a) Usually idiopathic
- b) Associated with specific ECG changes**
- c) Associated with chronic alcohol misuse
- d) Caused by Coxsackie A, influenza and HIV infection

24- All of the following are recognized complications of acute MI EXCEPT

- a) Acute mitral regurge
- b) Acute aortic regurge**
- c) Dressler's syndrome
- d) Left ventricular aneurysm

25- Which of the following tests is most sensitive and specific for the diagnosis of coronary artery disease?

- a) Stress ECG
- b) Stress echocardiography
- c) Cardiac catheterization and coronary angiography**
- d) Multi slice CT

26- Mitral stenosis ...

- a) Graham steel murmur may occur**
- b) Causes enlargement of both left atrium & left ventricle
- c) May lead to development of non cardiogenic pulmonary edema
- d) Rarely causes AF

Graham steel murmur is an early diastolic murmur heard in the second intercostal space to the left of the sternum. It is associated with pulmonary valve regurgitation in pulmonary hypertension.

27- Sudden death may occur in

- a) AS**
- b) ASD
- c) PDA
- d) Constrictive pericarditis

28- Clinically, severity of MS is best assessed by

- a) Diastolic shock
- b) Proximity of S2-opening snap gap**
- c) Paroxysmal nocturnal dyspnea
- d) Shorter duration of mid diastolic murmur

29- Clubbing is not a feature of :

- a) Fallot's tetralogy
- b) Left atrial myxoma
- c) Right to left shunt
- d) Acute bacterial endocarditis**

30- Digitalis toxicity is associated with all except

- a) Wenckebach block
- b) Ventricular bigeminy
- c) Paroxysmal atrial tachycardia with block
- d) Mobitz type II block**

31- Hemoptysis may be found in

- a) Left ventricular failure**
- b) Right ventricular failure
- c) Pulmonary stenosis
- d) Left to right shunt

32- Which is not a major manifestation of Jones criteria in rheumatic fever

- a) Chorea
- b) Erythema nodosum**
- c) Subcutaneous nodule
- d) Polyarthrititis

NB : Erythema marginatum not nodosum ☺

33- Atrial myxoma may be associated with all except

- a) Fever
- b) Splenomegaly**
- c) Clubbing
- d) High ESR

34- S₄ is not associated with

- a) AS
- b) Hypertrophic cardiomyopathy
- c) Chronic mitral regurge**
- d) Systemic hypertension

35- Incidence of infective endocarditis is least in

- a) MI
- b) ASD**
- c) PDA
- d) VSD

36- Which enzyme rise earliest in acute myocardial infarction

- a) AST
- b) ALT
- c) CPK**
- d) LDH

37- Which of the following β blockers is used in heart failure

- a) Carvedilol**
- b) Atenolol
- c) Labetalol
- d) Pindolol

38- Drug of choice in acute management of PSVT is

- a) Amiodarone
- b) Verapamil
- c) Metoprolol
- d) Adenosine**

39- Earliest valvular lesion in acute rheumatic carditis is

- a) MS
- b) AI
- c) MI**
- d) AS

40- Commonest heart valve abnormality revealed after acute myocardial infarction is

- a) AI
- b) MI**
- c) AS
- d) AI

41- Which one of the following is the most reliable feature of chest pain secondary to ischemic heart disease?

- a) Retrosternal location
 - b) Radiation to the lower jaw**
 - c) ECG shows T wave inversion in lead III
 - d) Pain aggravated by heavy meals
- Retrosternal chest pain, though characteristic of ischemic heart disease, is also may occur in other condition such as esophageal spasm.
 - Radiation to the lower jaw is the most specific characteristic of angina pain.

42- In cardiopulmonary resuscitation which of the following is true?

- a) External cardiac massage should be performed at 30 compressions/min
 - b) Most patients in ventricular fibrillation will respond to 200 J shock**
 - c) Adrenaline should not be used in ventricular fibrillation
 - d) Calcium chloride should be given
- External cardiac massage should be done at a rate of 60-80/min
 - Calcium chloride is ineffective except in Ca antagonist overdose & after cardiac surgery

43- Which of the following statements is true regarding infective endocarditis?

- a) Can occur on previously normal heart valves**
- b) Can be caused only by bacteria
- c) Streptococcus fecalis is the commonest pathogen
- d) Occurs commonly in calcific mitral stenosis
- IE may occur in previously normal heart as occurs in IV drug addicts
- It can be caused by bacteria as well as fungi & rickettsia

44- Treatment with thiazide diuretic :

- a) Improves glucose tolerance
- b) Reduces potassium loss
- c) May precipitate gout**
- d) Reduces renin level

45- Accentuation during inspiration characterizes the murmur of :

- a) AR
- b) AS
- c) TR**
- d) VSD

46- All of the following antiarrhythmic drugs can not be used with heart failure except

- a) Verapamil
- b) Disopyramide
- c) Quinidine
- d) Amiodarone**

Most antiarrhythmic drugs have a negative inotropic effect except amiodarone

47- Right ventricular hypertrophy may be present in all of the following conditions except

- a) Cor pulmonale
- b) ASD
- c) TS**
- d) MS

48- Which of the following is absolute contraindication to thrombolysis for an acute myocardial infarction?

- a) Menstruation finished 2 days previously
- b) Proliferative diabetic retinopathy
- c) Ischemic stroke 18 months previously
- d) Total hip replacement 7 days previously**

Notice that proliferative diabetic retinopathy is not an absolute contraindication, but a 'relative' one.

49- All of the following are associated with increased rates of myocardial infarction except

- a) Hemochromatosis**
- b) SLE
- c) Antiphospholipid syndrome
- d) Kawasaki disease

Hemochromatosis can result in a cardiomyopathy, but not MI

50- Cardiac tamponade may occur with all except

- a) Tuberculosis
- b) Rheumatic fever**
- c) Rheumatoid arthritis
- d) Uremia

51- Coarctation of the aorta

- a) Is more common in women
- b) Is associated with rib notching all 12 ribs on the left
- c) Rarely causes problems in pediatric life
- d) Is associated with cerebral aneurysm**
 - Notching of ribs 3-8 is seen
 - Coarctation can cause heart failure in the neonate.
 - Stroke may result from hypertension or from associated berry aneurysm

52- Chest pain most commonly occurs in

- a) MS
- b) AI
- c) AS**
- d) TI

53- Digoxin toxicity is more likely with

- a) Hyperkalemia
- b) Hypocalcemia
- c) Hypomagnesemia**
- d) Spironolactone

Hypokalemia, hypomagnesemia & hypercalcemia worsen digitalis toxicity.

54- Which of the following factors is most suggestive of a diagnosis of aortic dissection?

- a) Profound vomiting prior to pain
- b) History of syphilis**
- c) Down's syndrome
- d) Hypotension

Dissection of the aorta is associated with hypertension, cocaine abuse, trauma & syphilis.

By association with coarctation, it is also associated with Turner's, but not with Down's syndrome.

55- Ventricular septal defect is associated with

- a) Pansystolic murmur once Eisenmenger's syndrome has occurred
 - b) Lithium exposure in utero
 - c) Aortic regurge**
 - d) Heart failure on the first day of life
- The murmur disappears with the onset of Eisenmenger's syndrome as pressures equalize.
 - Sub-aortic VSD is associated with AR
 - Lithium exposure during development is associated with Ebstein's anomaly (Tricuspid regurge)

56- What is the most appropriate initial management of propranolol toxicity?

- a) IV atropine
- b) IV adrenaline
- c) IV glucagon**
- d) IV ciprofloxacin

Glucagon is the drug of choice for beta-blocker toxicity. It stimulates production of cAMP through non-adrenergic pathways, resulting in enhanced myocardial contractility, heart rate, and atrio-ventricular conduction.

57- Signs of cardiac tamponade include all of the following except

- a) Paradoxical pulse
- b) Hypotension
- c) Pericardial knock**
- d) Tachycardia

Pericardial knock occurs in constrictive pericarditis. It is High pitched early diastolic sound due to sudden halting of the relaxing ventricles by rigid pericardium.

58- Reversed splitting second heart sound occurs in all of the following except

- a) LBBB
- b) AS
- c) ASD**
- d) Systemic hypertension

59- Which of the following is an obligatory sign of malignant hypertension

- a) Renal failure
 - b) Papilledema**
 - c) Heart failure
 - d) Arterio-venous crossing changes
- Accelerated hypertension : Accelerated → grade 3 retinopathy
 - Malignant hypertension : hypertensive crisis with grade 4 retinopathy (papilledema)

60- A hypertensive patient showing a hypertensive crisis in response to propranolol most probably has :

- a) Pheochromocytoma**
- b) Conn's syndrome
- c) Renovascular hypertension
- d) None of the above

61- All of the following are used in the treatment of severe left ventricular failure except:

- a) Disopyramide**
- b) Nitroprusside
- c) Dobutamine
- d) Mechanical ventilation

Disopyramide is class 1a antiarrhythmic drug & has a negative inotropic effect. Antiarrhythmic drugs are generally –ve inotropic and should be avoided as possible.

Dr. Ahmed Mowafy

Gastroenterology MCQ

1- A 56 - year - old man presents to his internist with jaundice The patient is receiving no medication , and his only symptomatic complaint is mild fatigue over the past 2 months. Physical examination is remarkable only for the presence of sclera icterus. The patient has no significant past medical history. Analysis of serum chemistry reveals the following : SGOT : 35 U/L , SGPT : 35U/L , Total bilirubin : 7 mg/dl , Direct bilirubin : 5 mg/dl , Alkaline phosphate : 720 U/L . Which of the following is the next most appropriate diagnostic step ?

- a. CT of the abdomen.
- b. Liver biopsy.
- c. Review of peripheral blood smear.
- d. Endoscopic retrograde cholangiopancreatography (ERCP)
- e. No further evaluation necessary : the patient has Dubin-Johnson syndrome.

2- Which of the following statements about achalasia is correct ?

- a. The underlying abnormality appears to be defective innervation of the esophagus and lower gastric sphincter.
- b. Dysphagia , chest pain and regurgitation are the predominant symptoms.
- c. Chest x-ray often reveal a large gastric air bubble.
- d. Manometry reveals a normal or elevated pressure of the lower gastric sphincter.
- e. Omeprazole is effective in controlling the symptoms in many patients.

3 - A 70 year-old woman with a history of aspirin-induced gastritis 5 years ago now has severe knee and hip pain that is thought to be due to osteoarthritis. She requires treatment with non steroidal anti-inflammatory agents, which of the following agents would be most helpful for prophylaxis against recurrent gastrointestinal bleeding ?

- a. Omeprazole.
- b. Misoprostol.
- c. Nizatidine.
- d. Sucralfate.
- e. Atropine.

4- Which one of the following diagnostic studies for malabsorption is usually normal in persons who have bacterial overgrowth syndrome ?

- a. Fecal fat quantitation (24h)
- b. Stage II Schilling test (intrinsic factor giving with vitamin B₁₂)
- c. D-Xylose absorption test.
- d. Lactulose breath test.
- e. Quantitative cultures of jejuna aspirates.

5- As a consequence of severe liver damage , hepatic amino acid handling is deranged . In this situation , plasma levels of which of the following are likely to be lower than normal ?

- a. Ammonia (NH₃)
- b. Ammonium (NH₄)
- c. Alanine.
- d. Urea.
- e. Glycine.

6- Which of the following conditions are known to predispose to the formation of cholesterol gallstone ?

- a. Hypertriglyceridemia.
- b. Hypercholesterolemia.
- c. Auto immune hemolytic anemia.
- d. Sick cell anemia.
- e. Surgical resection of the ileum.

7- A patient with sclera icterus and a positive reaction for bilirubin by urine dipstick testing could have which of the following disorders ?

- a. Autoimmune hemolytic anemia.
- b. Dubin Johnson syndrome.
- c. Crigler-Najjar type II disorder.
- d. Thalassemia intermedia.
- e. Gilbert's syndrome.

8- Which of the following statements regarding delta hepatitis virus (HDV) is correct ?

- a. HDV is a defective DNA virus.
- b. HDV can infect only persons infected with hepatitis B virus (HBV).
- c. The HDV genome is partially homologous with HBV DNA.
- d. HDV infection has been found only in limited areas of the world.
- e. Simultaneous infection with HDV & HBV results in an increased risk of the development of chronic hepatitis.

9- A 55- year - old male smoker presents with burning epigastric pain several hours after a meal, which is relieved by antacids. Upper gastrointestinal endoscopy discloses an ulcer with a well-demarcated border at the duodenal bulb. Histologic examination of a biopsy specimen of the ulcer crater reveals eosinophilic necrosis with surrounding fibrosis without evidence of malignancy. Furthermore, analysis of a histologic section involving the gastric mucosa reveals invasion with a gram-negative rod. Which of the following is the most appropriate therapy?

- a. Mylanta.
- b. Ranitidine.
- c. Omeprazole.
- d. Bismuth plus metronidazole.
- e. Omeprazole plus clarithromycin plus metronidazole.

10- A 66 year-old man presents with fatigue and tea colored urine Physical examination reveals icteric sclera but is otherwise unremarkable. Which of the following conditions is LEAST likely to account for these findings ?

- a. Pancreatic cancer.
- b. Gallbladder cancer.
- c. Primary biliary cirrhosis.
- d. Auto immune hemolytic anemia.
- e. Viral hepatitis.

11- Which of the following features is more commonly associated with ulcerative colitis than with crohn's disease ?

- a. Fistulas.
- b. Rectal bleeding.
- c. Segmental involvement.
- d. An abdominal mass.
- e. Mesenteric lymph node involvement.

12 - Which of the following statements concerning the relationship of duodenal ulcer and *H. pylori* infection is correct ?

- a. Virtually all patients with a duodenal ulcer harbor *H. pylori*.
- b. Most patients infected with *H. pylori* will develop an ulcer.
- c. *H. pylori* invades the gastric mucosa.
- d. The demonstration of *H. pylori* as a causative feature in a given patient with a duodenal ulcer requires biopsy.
- e. The relapse rate for duodenal ulcer is equivalent whether *H. pylori* eradication therapy or H₂ receptor antagonists are used.

13- A 56 year- old patient with cirrhosis of the liver presents with massive hematemesis. Somatostatin, fluids and blood products are administered and the patient is intubated. Emergency endoscopy reveals bleeding esophageal varices. The patient becomes stable hemodynamically but is still bleeding. The most appropriate next step is :

- a. intravenous propranolol.
- b. intravenous vasopressin.
- c. balloon tamponade.
- d. endoscopic injection sclerotherapy.
- e. endoscopic variceal band ligation.

14- Typical causes of extra hepatic cholestatic jaundice include :

- a. sclerosing cholangitis.
- b. primary biliary cirrhosis.
- c. cystic fibrosis.
- d. alcoholic cirrhosis.
- e. non-alcoholic steatohepatitis.

15- The following features suggest extrahepatic cholestasis rather than viral hepatitis EXCEPT:

- a. a palpable gall bladder.
- b. right hypochondrial tenderness.
- c. serum alkaline phosphatase concentration >2.5 times normal.
- d. pruritus and rigors.
- e. peripheral blood polymorph leucocytosis.

16- As regard to conjugated bilirubin , which of the following is correct ?

- a. Conjugated bilirubin in the serum in hemolytic anemia is typically increased.
- b. Conjugated bilirubin in urine of healthy subjects is typically undetectable.
- c. Conjugated bilirubin normally constitutes most of the total serum bilirubin.
- d. Conjugated bilirubin in Gilbert's syndrome is typically increased.
- e. Conjugated bilirubin in the serum in obstructive jaundice is typically decreased.

17- The typical features of acute (fulminant) hepatic failure include : EXCEPT

- a. onset within 8 weeks of the initial illness.
- b. hepatosplenomegaly and ascites.
- c. encephalopathy and fetor hepaticus.
- d. nausea, vomiting and renal failure.
- e. cerebral edema without papilloedema.

18- The typical features of hepatic cirrhosis include : EXCEPT

- a. a small shrunken liver .
- b. painful splenomegaly.
- c. peripheral blood macrocytosis.
- d. parotid gland enlargement.
- e. central cyanosis.

19 - In the management of ascites due to hepatic cirrhosis :

- a. the dietary sodium intake should be restricted to 140 mmol/day.
- b. paracentesis and parenteral albumin replacement improve the survival rate.
- c. the daily calorie intake should be restricted to 1500 calories.
- d. diuretic therapy should achieve a daily weight loss of at least 2.5 kg.
- e. the protein intake should be at least 40g/day unless encephalopathy is suspected.

20 - Prevention of recurrent variceal bleeding is achievable using : EXCEPT

- a. somatostatin (*octreotide*) therapy.
- b. TIPSS.
- c. C-adrenoceptor antagonist (C-blocker) treatment.
- d. variceal banding.
- e. sclerotherapy.

21- In primary biliary cirrhosis :

- a. middle-aged males are affected predominantly.
- b. pruritus is invariably accompanied by jaundice.
- c. osteomalacia and osteoporosis both occur as the disease progresses.
- d. rigors and abdominal pain are presenting features.
- e. smooth muscle antibodies are present in high titres in the serum.

22- The typical features of primary hemochromatosis include : EXCEPT

- a. association with an autosomal recessive gene located on chromosome 6.
- b. male predominance.
- c. hepatic cirrhosis and diabetes mellitus.
- d. congestive cardiomyopathy.
- e. grey skin pigmentation due to iron deposition.

23- The typical features of pyogenic liver abscess include : EXCEPT

- a. obstructive jaundice and pruritus.
- b. tender hepatomegaly without splenomegaly.
- c. pleuritic pain and pleural effusion.
- d. multiple abscesses, especially in ascending cholangitis.
- e. Escherichia coli, anaerobes and streptococci present in pus.

24- The typical clinical features of acute cholecystitis include :

- a. jaundice, nausea and vomiting.
- b. colicky abdominal pain in spasms lasting about 5 minutes.
- c. right hypochondrial tenderness worse on expiration.
- d. air in the biliary tree on plain radiograph.
- e. peripheral blood leucocytosis.

25- As regard to viral hepatitis , which of the following is correct ?

- a. Hepatitis B can be acquired from serous fluid from a wound.
- b. Hepatitis C is not a cause of hepatocellular carcinoma.
- c. Hepatitis A is a cause of chronic liver disease.
- d. Hepatitis E can be acquired by sharing needles.
- e. A person with only a hepatitis B core IgG test positive is infectious for hepatitis B .

26- Which of the following is the most common cause of upper GI bleeding ?

- a. Mallory-Weiss tear.
- b. Variceal hemorrhage.
- c. Dieulafoy lesion.
- d. Peptic ulcer disease .
- e. Thrombocytopenia.

27- The initial regimen for a patient with tropical sprue is which of the following ?

- a. Folate and niacin.
- b. Iron sulfate and tetracycline.
- c. Gluten-free diet and prednisone.
- d. Folate and tetracycline.
- e. Azathioprine and prednisone.

28- The initial regimen for a patient with Crohn's disease is which of the following ?

- a. Folate and niacin.
- b. Iron sulfate and tetracycline.
- c. Gluten-free diet and prednisone.
- d. Folate and tetracycline.
- e. Azathioprine and prednisone.

29 - A 64-year-old man presents to his primary care physician with a complaint of foul-smelling diarrhea, which he has had for the past 4 to 5 months. He has three or four stools a day, which he describes as oily in nature. He denies experiencing a change in the caliber of his stools, and he also denies having abdominal pain, melena, or blood per rectum. His appetite is still fairly good, but he describes weight loss & fatigue. His medical history is notable for hypertension, hyperlipidemia, type 2 diabetes with retinopathy and mild neuropathy, and gastroesophageal reflux disease. His medications include metformin, insulin, atenolol, simvastatin, aspirin, and omeprazole. The neurologic examination is notable only for mild stocking-glove neuropathy, and an S₄ is heard on cardiac examination. Laboratory tests reveal macrocytic anemia and mild hypoalbuminemia.

Which of the following is the most likely diagnosis for this patient?

- a. Crohn disease.
- b. Intestinal lymphoma.
- c. Bacterial overgrowth syndrome.
- d. Hemochromatosis.
- e. Chronic pancreatitis.

30- A 75-year-old man presents with gradually worsening pruritus, jaundice, and vague right upper quadrant abdominal ache. He has a 30-year history of ulcerative colitis. On exam, he has normal vital signs, scleral icterus, and hepatomegaly. His abdominal ultrasound shows dilated intrahepatic and extrahepatic ducts but no evidence of stones. His bilirubin level is 10, alkaline phosphatase level is 400, and amylase level is normal. An abdominal CT scan finds no pancreatic masses or adenopathy.

The differential diagnosis for this patient should include which of the following?

- a. Primary biliary cirrhosis.
- b. Sclerosing cholangitis.
- c. Carcinoma of the biliary tract.
- d. Drug-induced cholestasis.
- e. B and C.

31- Which of the following is true regarding cholecystokinin ?

- a. In excess , it precipitates gallstones.
- b. It causes delayed gastric emptying through its action as a smooth muscle relaxant.
- c. It is found in higher concentrations following cholecystectomy.
- d. It releases the 'ileal brake'
- e. It stimulates pancreatic exocrine secretion.

32- Which of the following is the most effective in the treatment of gastro-esophageal reflux disease ?

- a. Ranitidine 300 mg BD.
- b. Omeprazole 20 mg OD.
- c. Bismuth TDS.
- d. Mg trisilicate .
- e. Aluminium hydroxide.

Answers

1- a. CT of the abdomen.

Initial considerations in evaluating a patient with jaundice require a determination of whether the patient has primarily unconjugated hyperbilirubinemia or conjugated hyperbilirubinemia, in which case > 50 % of the serum bilirubin is conjugated bilirubin. The major differential diagnosis in this case is between impaired hepatocyte bilirubin excretion and extrahepatic biliary obstruction. Intra hepatic obstruction may occur in drug reactions, alcoholic hepatitis, the third trimester of pregnancy and viral or autoimmune hepatitis. In the case of Dubin-Johnson syndrome, the conjugated hyperbilirubinemia is due to a congenital defect in bilirubin excretion and generally is not associated with abnormalities of alkaline phosphatase or hepatic amino-transferases. Patients who have conjugated hyperbilirubinemia and abnormal liver enzymes generally fall into two groups: those whose aminotransferase elevation is dominant and who are suspected of having a hepatocellular disorder and those who have primary elevation of alkaline phosphatase and are likely to have either intra or extra hepatic biliary obstruction. In the latter group of patients, it is imperative to rule out extra hepatic obstruction by means of ultrasonography of the right upper quadrant or abdominal CT. If the biliary ducts are not dilated on radiologic evaluation, the next most appropriate procedure would be ERCP.

2- b. Dysphagia, chest pain and regurgitation are the predominant symptoms.

Achalasia is a motor disorder of esophageal smooth muscle in which the lower esophageal sphincter (LES) does not relax properly in response to swallowing and normal esophageal peristalsis is replaced by abnormal contractions. Manometry reveals a normal or elevated LES pressure and reduced or absent swallow-induced relaxation. A decreased number of ganglion cells are noted in the esophageal body and LES of patients with achalasia, suggesting that defective innervations of these areas is the underlying abnormality. Dysphagia, chest pain and regurgitation are the predominant symptoms. The chest x-ray often reveals absence of the gastric air bubble, and the barium swallow reveals a dilated esophagus. Calcium channel antagonists such as nifedipine relax smooth muscle and have been effective in treating some patients. However, the mainstay of therapy remains pneumatic dilation.

3- b. Misoprostol.

Gastric mucosal injury, potentially resulting in ulcers and erosive gastritis, may be produced by aspirin and nonsteroidal anti-inflammatory drugs including indomethacin, ibuprofen and naproxen. These agents may be directly toxic to the gastric mucosa by depleting protective endogenous mucosal prostaglandins. Moreover, they more directly interrupt the mucosal barrier, allowing back diffusion of hydrogen ions as well as reducing gastric mucus secretion and increasing gastric acid secretion. The prostaglandin E analogue misoprostol is effective in preventing ulcers and gastritis caused by NSAIDs. Its mechanism of action is believed to be stimulation of gastric mucus and duodenal bicarbonate secretion as well as the maintenance of the gastric mucosal barrier via epithelial cell restitution.

4- C. D-Xylose absorption test.

Malabsorption caused by bacterial overgrowth results from bacterial utilization of ingested vitamins and the deconjugation of bile salts by bacteria in the proximal jejunum . The bacteria also separate vitamin B 12 from the intrinsic factor, thus interfering with its absorption from the ileum. persons with bacterial overgrowth have steatorrhea , abnormal Schilling test (even with the administration of intrinsic factor), increased metabolism of non absorbable carbohydrates (lactulose) and increased bacterial concentrations in jejunal aspirates. Absorption of D- Xylose , a simple carbohydrate , is often normal.

5- D. Urea.

Amino acids , except for the branched - chain amino acids leucine , isoleucine and valine , are taken up by the liver via the portal circulation and are metabolized to urea .

6- E. Surgical resection of the ileum.

Obesity , clofibrate therapy , age and oral contraceptive therapy predispose to gallstone formation by increasing biliary cholesterol excretion . Extensive ileal resection leads to malabsorption of bile salts , depletion of the bile acid pool , and an inability to micellize cholesterol , resulting in an increased risk of gallstone formation. No correlation exists between serum cholesterol concentration and biliary cholesterol secretion . Hypercholesterolemia does not predispose to cholelithiasis. Other important predisposing factors to the formation of cholesterol gallstones include gallbladder hypomotility resulting from prolonged parenteral nutrition , fasting or pregnancy. Pigment gallstones may occur when the bilirubin level is high , such as in hemoglobinopathies or hemolytic anemia.

7- B. Dubin Johnson syndrome.

- Under normal conditions or even in cases of unconjugated hyperbilirubinemia (e.g. hemolysis, Gilbert's & Crigler-Najjar types I and II) : the urine contains no bilirubin. This is because the unconjugated bilirubin , is tightly bound to albumin and is not filtered by the glomeruli.
- In cases of conjugated hyperbilirubinemia (e.g. Dubin Johnson , Rotor syndrome) : the urine dipstick becomes positive for bilirubin.

8- B. HDV can infect only persons infected with hepatitis B virus (HBV).

HDV is a defective virus that coinfects with and requires the helper function of HBV for its replication and expression. Therefore, the duration of HDV infection is determined by and limited to the duration of HBV infection. Although the delta core is encapsulated by an outer coat of HBsAg, the delta antigen has no antigenic similarity to that of any of the HBV antigens. In general, patients with simultaneous HBV & HDV infections do not have an increased risk of developing chronic hepatitis compared with patients with acute HBV infection alone. HDV superinfection of patients with chronic HBV infection carries an increased risk of fulminant hepatitis and death.

9- E. Omeprazole plus clarithromycin plus metronidazole.

This patient has the classic clinical symptoms and endoscopic findings of a duodenal ulcer. It is now a recommendation that *H. pylori* infection should be eradicated in patients with documented peptic ulcer disease. No single or double agent regimen has been reliably effective in eradicating the organism. In general, a combination of two antibiotics plus a proton pump inhibitor (*omeprazole*) is required to achieve a high likelihood of eradication. Such triple therapy is effective in eradicating the organism in approximately 90 % of the cases.

10 - D. Auto immune hemolytic anemia.

Bilirubin , a breakdown product of heme derived from red blood cells, is transported to the liver in an unconjugated state, which is not renally excreted . The conjugation of bilirubin occurs in the endoplasmic reticulum of the hepatocyte when the molecule is attached to glucuronic acid .The conjugated bilirubin is then transported into the bile, then into the colon where most is excreted into the feces. Processes that prevent excretion of conjugated bilirubin due to intra hepatic diseases e.g. viral hepatitis, drugs as estrogen , chlorpromazine , or extra hepatic obstruction (blockage due to cancer of the biliary system or pancreas , bile duct diseases such as sclerosing cholangitis , primary biliary cirrhosis lead to an increase of this species in the blood. Elevated levels of this soluble form of bilirubin can be detected visually as tea or cola- colored urine. Ultrasonography , CT or ERCP would be necessary to distinguish between extra and intra hepatic causes of conjugated - hyperbilirubinemia. Unincreased load of unconjugated bilirubin produced in states of excessive red cell destruction would generally not be detected in a urine test for bilirubin.

11- B. Rectal bleeding.

There are many similar manifestations of crohn's disease (CD) and ulcerative colitis (UC). However UC almost always displays continuous rather than the more segmental involvement characteristic of CD . UC rarely involves the entire bowel wall , whereas such transmural disease in CD can lead to abdominal masses, mesenteric node inflammation, and fistula formation. Since CD is much less likely to involve the rectum , hematochezia is less common than it is in UC . Extra intestinal manifestations , colonic malignancy and toxic megacolon can occur with either entity.

12- A. Virtually all patients with a duodenal ulcer harbor *H. pylori*.

Although only 15 - 20% of persons infected with the spiral shaped , gram negative bacillus *H. pylori* will develop an ulcer 95 - 100% of those with a documented duodenal ulcer can be shown to have *H. pylori* infection. Typically the organism is found in the deep portion of the mucus gel. Although bacteria may adhere to the luminal surfaces of the gastric epithelial cells , they do not invade the mucosa . It appears that the bacteria activate inflammatory cells that produce mucosal damage and release enzymes such as proteases and phospholipases which degrade the mucus gel layer . The prevalence of gastric colonization with *H. pylori* increases with age and with lower socioeconomic status. There are multiple ways to diagnose *H. pylori* infection including histologic examination , culture measurement of urease activity and serologic studies. The most effective way to decrease the relapse rate for duodenal ulcer is to institute therapy that successfully eradicates *H. pylori* . The relapse rate is much higher if H2 receptor antagonists are used alone.

13- E. endoscopic variceal band ligation.

One of the most important complications of hepatic cirrhosis is variceal bleeding , which along with ascites and encephalopathy results from portal hypertension. The primary prophylaxis of known or previously bleeding varices includes cessation of alcohol , beta blockers , nitrates and possibly endoscopic variceal band ligation (EVL). Once bleeding develops , the first considerations are hemodynamic stabilization and airway protection. Emergency endoscopy is required to define the nature and site of bleeding. Medical therapy with vasopressin , with or without nitroglycerine or with somatostatin or octreotide can be used to slow the bleeding while a waiting endoscopy. Although endoscopic injection sclerotherapy controls the active hemorrhage in 90% , recent studies have suggested that EVL may be superior due to equal control rates with less rebleeding , fewer complications and reduced number of sessions. Balloon tamponade can be used if clinical stability can not be achieved and endoscopy is not immediately available.

14- C. cystic fibrosis.

- Sclerosing cholangitis, primary biliary cirrhosis , alcoholic cirrhosis : Intrahepatic obstruction.
- Cystic fibrosis : Common bile duct obstruction from chronic pancreatitis.
- Non-alcoholic steatohepatitis : Rarely causes jaundice.

15- B. right hypochondrial tenderness.

Right hypochondrial tenderness : Also common in acute hepatitis.

16- B. Conjugated bilirubin in urine of healthy subjects is typically undetectable.

- As almost all bilirubin is unconjugated and albumin-bound.
- In hemolytic anemia ,there is unconjugated hyperbilirubinaemia.
- Unconjugated bilirubin is increased in Gilbert's syndrome.
- Conjugated bilirubin in the serum in obstructive jaundice is typically increased.

17- B. hepatosplenomegaly and ascites.

18- B. painful splenomegaly.

19- E. the protein intake should be at least 40g/day unless encephalopathy is suspected.

- The dietary sodium intake should be restricted to < 40 mmol/day.
- paracentesis and parenteral albumin replacement are symptomatic measures with no prognostic value.
- Calorie restriction is neither required nor desirable.
- Daily weight loss >1 kg may precipitate renal impairment and/or encephalopathy.
- Protein restriction may be necessary to control encephalopathy.

20- A. somatostatin (octreotide) therapy. Somatostatin may be useful in acute bleeds.

21- C. osteomalacia and osteoporosis both occur as the disease progresses.

- middle-aged females are affected predominantly.
- pruritus may precede jaundice by months or even years.

- osteomalacia and osteoporosis both occur as the disease progresses due to Vitamin D malabsorption and hepatic osteodystrophy.
- rigors and abdominal pain are presenting features suggest obstruction of large bile duct.
- High titres of anti mitochondrial antibody , not smooth muscle antibodies.

22 - E. grey skin pigmentation due to iron deposition.

Melanin not iron deposition.

23 - A. obstructive jaundice and pruritus.

Jaundice is usually mild and not often obstructive.

24 - E. peripheral blood leucocytosis.

- Jaundice occurs in less than 20% even in the absence of stones (*Mirizzi's syndrome*)
- Pain is typically continuous for up to 6 hours.
- right hypochondrial tenderness worse on inspiration (*Murphy's sign*).

25 - A. Hepatitis B can be acquired from serous fluid from a wound.

26- D. peptic ulcer disease.

27- D. Folate and tetracycline.

28- E. Azathioprine and prednisone.

29- B. Bacterial overgrowth syndrome.

This patient has a subacute to chronic presentation with steatorrhea and likely folate deficiency, vitamin B₁₂ deficiency or both. He has diabetes mellitus, which can cause stasis through autonomic neuropathy. Anything that causes intestinal stasis allows a proliferation of bacteria, which leads to changes in bile salt metabolism and impaired absorption, primarily of vitamin B₁₂ . In addition , this patient is taking proton pump inhibitor , which can reduce motility of the proximal small bowel, often precipitating symptoms in a predisposed patient. Therapy usually entails repeated courses of antibiotics active against anaerobes. There is no convincing evidence for the effectiveness of any of the other choices presented.

30- E. B and C.

In this case, other possible diagnoses include a solitary common bile duct stone that escaped detection on ultrasound and CT, occult pancreatic carcinoma, bile duct stricture, and extrahepatic compression of the biliary tract. Although sclerosing cholangitis usually develops in younger men (aged 20 to 50 years), it is often associated with ulcerative colitis. About 60% of patients will also have a positive perinuclear antineutrophil cytoplasmic antibody (p-ANCA) test result. The hallmark finding on ERCP is segmental stenosis of the biliary tree. Primary biliary cirrhosis is an autoimmune disease that typically affects women. About 95% of patients have antimitochondrial antibodies. Both primary biliary cirrhosis and drug-induced cholestasis cause intrahepatic cholestasis without extrahepatic duct dilatation.

31- E. It stimulates pancreatic exocrine secretion.

32- B. Omeprazole 20 mg OD.

Diabetic patient 50 years old coming with edema lower limb & puffiness of eyelids ,blood pressure was 200/120, fundus examination showed flame shaped hemorrhage with multiple exudates & microaneurysms , ECG showed tall R wave and inverted T wave

On clinical examination there was glove & stock hypoesthesia , edema lower limb.

Laboratory findings : random blood sugar 350 mg/dl , glycated-Hb 11% , total cholesterol 220 , HDL 30gm% , triglycerides 700, urine albumen ++++ , creatinine 2mg/dl

What is your diagnosis?

- ✗ Diabetic neuropathy with hypertension, left ventricular hypertrophy & strain pattern, diabetic retinopathy, diabetic dyslipidemia & peripheral neuropathy.

What are other investigations needed?

- 24 hrs urine collection for albumin.
- Renal function tests → urea & uric acid.
- Urine analysis
- Echocardiography
- Plain chest x-ray
- CBC → renal anemia (normocytic – normochromic)

20years old male coming to ER by fever, cough, hemoptysis
On examination there was multiple linear streaks on his forearms by auscultation there was pansystolic murmur on tricuspid area increased by inspiration .

Chest examination showed bronchial breathing and cavitation . chest x-ray showed multiple cavities in lung with air fluid level.

What is your diagnosis?

- Infective endocarditis of the tricuspid valve addict causing septic embolization .

How would you treat this patient?

- Vancomycin 1gm /12h until fever subsides for 2-3 weeks
- Other antistaph. Antibiotics
- May be fungal → antifungal ttt

Female patient coming to the clinic by marked pallor, puffiness of eyelids, recurrent vomiting & severe pruritis, blood pressure was 190/110. She had marked proximal muscle weakness with failure to stand up from squatting position . there were generalized bony pain.

Heart auscultation showed continuous friction sound on left parasternal area

Laboratory findings creatinine 9mg%, uric acid 12, calcium 7, phosphate 8mg%, alkaline phosphate 400, urine analysis showed WBCS > 100/hpf

u/s : kidney size < 6cm in length

CBC :Hb 9gm/dl , RBCs 3.5 million , mcv 88.

What is your diagnosis?

- ✗ Chronic renal failure with renal osteodystrophy, anemia & acute dry pericarditis

What is the causes of proximal muscle weakness ?

- Renal osteodystrophy due to ↓ vit D → osteomalacia
- Which leads to
- → ↓osteoid calcification
- → proximal muscle weakness.

What are other investigations needed ?

- Plain x-ray on pelvis & neck of femur → cystic changes & pseudofractures (head & shaft of femur).
- Para thyroid hormone level
- Iron studies
- Reticulocyte count
- Creatinine clearance
- Urine culture & sensitivity

How would you treat this patient ?

- Antibiotics according to culture & sensitivity test
- Active vit D 1 mg/day
- Calcium 1- 1.5 gm/day .
- Phosphate binders : calcium carbonate
- Recombinant erythropoietin 4000 unit sc.

Male patient 20 years old coming to ER by altered level of consciousness, severe headache, vomiting .
On examination his temperature was 37, there was neck rigidity otherwise neurological examination was free. His B.pr was 210/110 Auscultation of heart showed accentuated S2 on aortic area. Chest was clear. On abdominal examination there were bilateral masses in loins. Family history of renal impairment was obtained. Urgent CT scan was done: blood in sulci of brain.

What's your diagnosis?

- ✎ Secondary hypertension most probably due to renal cause (polycystic kidney) leading to Subarachnoid hemorrhage.
- ✎ Accentuated S2 → long standing HTN.

What are other investigations needed?**1. Lumber puncture for CSF examination**

Meningitis	SAH
• Increased pressure • ↑↑ polymorphs • Markedly increased proteins • ↓↓ sugar and chlorides • Purulent organism may be detected	• Increased pressure • Normal culture • Increased proteins • Normal sugar and chlorides • Bloody

2. U/S abdomen: polycystic kidney.

Female patient 45ys came to the ER with coma. On examination she was pale with puffy eyelids. Her BPr was 120/80. Pulse 44/min. rectal temp. 35C .Arterial blood gases showed Po2 55mmHg & Pco2 45mmHg.
CBC: Hb 8mg/dl, RBCs 2.5 million. Normal blood chemistry. Cholesterol > 500 mg/dl. The patient was treated with full recovery.

What's your diagnosis?

- Myxedema coma with type II respiratory failure.

What was the ttt?

L-thyroxine and Hydrocortisone.

Causes of CBC and ABG findings?**1. Anemia**

- ↓ thyroxine
- Associated pernicious anemia
- Associated menorrhagia.

Type II respiratory failure: central and deposition of myxedematous tissue in respiratory muscles.